

THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

66 PORTLAND PLACE LONDON W1 • TWO SHILLINGS AND SIXPENCE



St. Martin's Bridge, Toledo, by the late Sir Frank Brangwyn, R.A. [Hon. A.], reproduced from a water colour in the collection of Sir Percy Thomas



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THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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TWO SHILLINGS AND SIXPENCE
TELEGRAMS: RIBAZO WESDO LONDON

AUGUST 1956

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Allied Societies' Rules

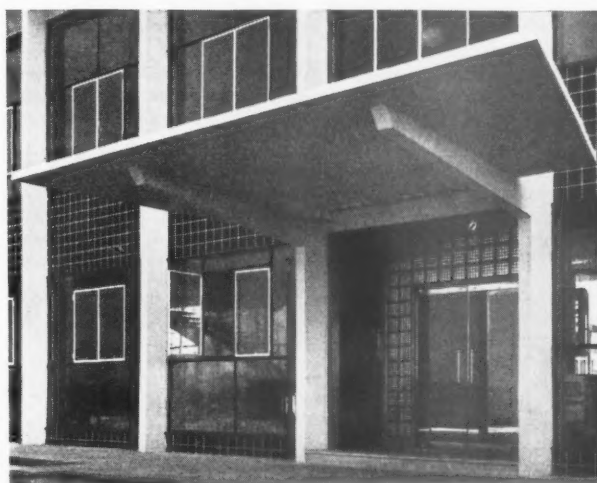
Under the provisions of Bye-Laws 69-74, architectural societies throughout the British Commonwealth may be admitted to alliance with the R.I.B.A. Where a society is so allied, the R.I.B.A. pays over annually a proportion, at present fixed at one-third, of the subscription of every member of the R.I.B.A. who is a member of that society and works or lives in the society's area. Naturally, in consideration of this financial commitment, the Institute retains some measure of control over the activities of the Allied Society, and this is exercised by the requirement that the rules of the society must be approved by the R.I.B.A. Council. With the development of the Commonwealth, this requirement has been relaxed in the case of the four senior self-governing Dominions. In all other countries the R.I.B.A. Council are asked from time to time to give approval to amendments to the rules of Allied Societies.

The Institute of Architects of Malaya was founded in 1923 and re-established in 1946 after the war. The ten-year period since then may be looked at as a time of consolidation, at the end of which the Institute have submitted a complete revision of their rules to suit present-day conditions. Most of the changes are in regard to administrative detail, but one change is worth mention: the class of Honorary Members is now to be known as Honorary Fellows.

The Essex, Cambridge and Hertfordshire Society of Architects also submitted an extensive revision of their rules. The principal changes were as follows: classes of membership for which quantity surveyors and 'associated craftsmen' were previously eligible are to be discontinued but without prejudice to the membership of existing members. The procedure for the nomination and election of the Officers and Council of the Society is revised and defined more strictly and the rules dealing with the disposal of cases of unprofessional conduct have been revised so as to define the procedure.

The Suffolk Association of Architects asked for approval to a change in the dates of their financial year and the date of their annual general meeting. The financial year will in future end on 31 December and the annual general meeting will be held in March. As previously, the newly elected Officers of the Society will take office in the following July. The sessional programme of the Association therefore now corresponds with that of the R.I.B.A.

The Council gave approval to all these proposals, which had been examined and approved by Mr. Jefferiss Mathews during his term of office as Honorary Secretary.



Factory for Messrs. Van Moppes Ltd., Basingstoke, main entrance. Architect: Leslie Wood [4]. This building was awarded the R.I.B.A. Architecture Bronze Medal for the four-year period ending 31 December 1954 in the area of the Hampshire and Isle of Wight Architectural Society

Public Interviews for Public Appointments

The Council considered a report from the Salaried and Official Architects' Committee on a recent case in which a short list of candidates had been interviewed for appointment by a public authority. The full discussions of the Selection Committee which had interviewed them were allowed to be published in the press, with consequent embarrassment to the unsuccessful candidates. It was agreed to make representations to the County Councils Association and the Association of Municipal Corporations with the suggestion that local authorities be advised that the discussion of candidates' qualifications, personalities and aptitudes should not be allowed to be printed in the public press. It was also agreed to express the Council's opinion that the publication of the names of a short list of candidates was in itself invidious.

Christmas Holiday Lectures for Young People

Mr. G. Grenfell Baines, [4], will give two lectures for young people at the R.I.B.A. Other points from the minutes of the Council Meeting on 3 July appear on page 439.

R.I.B.A. Council 1956-1957

The following nominations complete the Council: Representatives of Societies in Alliance with the Royal Institute: E. J. A. Weller [F] (Royal Australian Institute of Architects). A. Graham Henderson, R.S.A. [F] (Representative in the United Kingdom).

Two representatives of the R.I.B.A. Salaried and Official Architects' Committee: Dr. F. F. C. Curtis [A] and F. G. Southgate [A].

The Rome Scholarship in Architecture 1956

The Faculty of Architecture of the British School at Rome announce the award of the Rome Scholarship in Architecture for 1956 to Mr. Kevin Patrick Campbell, B.Arch.(L'pool) [A].

Mr. Campbell, who is 25 years of age, completed his architectural course in 1955, and is now a postgraduate student in the Department of Civic Design at the University of Liverpool.

The Rome Scholarship in Architecture is provided for by an annual grant made to the British School at Rome by the R.I.B.A. and is normally tenable for two years. Mr. Campbell's design is illustrated on pp. 424 and 425.

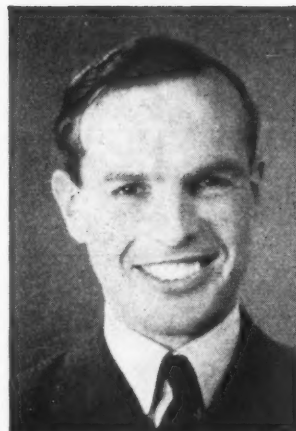
Office Buildings Symposium

Over 600 copies of the Report on the Symposium on Office Buildings have been sold.

There are still a few copies available, but members who have not yet filled in an order form and who still require copies should order now as the report will be out of print very shortly.



The Chairman's Chair for the Aston Webb Room



Mr. G. R. Ricketts, the new Secretary for Professional Relations

Secretary for Professional Relations

Mr. Gordon Randolph Ricketts, M.A., has been appointed as Secretary for Professional Relations and will be taking up his duties at the R.I.B.A. at the end of the year.

Mr. Ricketts is at present Secretary to the University of Nottingham Appointments Board, which post he has held since 1951. He was educated at St. Lawrence College, Ramsgate, and Keble College, Oxford, where he graduated with Honours in English Language and Literature. For a short period before the war he was a schoolmaster while waiting to go up to Oxford. He served in the Royal Air Force from 1940

to 1946, first on loan to the United States Navy as a flying boat pilot in the Gulf of Mexico, and later as a flying instructor in the Oxford University Air Squadron. He was released with the rank of Flight Lieutenant. From 1948 to 1951 he served in administrative positions on the staff of the Federation of British Industries.

Presentation of Chair by the Pharmaceutical Society of Great Britain

To celebrate the granting of a Supplemental Charter and other changes in the new constitution of the Pharmaceutical Society of Great Britain a reception was held last year at which His Royal Highness the Duke of Edinburgh was present, and the R.I.B.A. building was lent to the Society for the purpose.

To commemorate the occasion, the Pharmaceutical Society has presented to the Royal Institute a Chairman's Chair for the Aston Webb Room.

The chair, of English walnut, upholstered in leather to match the panelling of the Aston Webb Room, was designed and made by Messrs. Heal.

At a small informal ceremony on 2 July Mr. Granville Shaw, President of the Pharmaceutical Society, introduced Mr. E. A. Brocklehurst, who was President of the Society on the occasion of the reception, and he handed over the chair to Mr. Kenneth Cross, President R.I.B.A., who accepted it on behalf of the Royal Institute. This was followed by a dinner party given in the R.I.B.A. building at which were present Mr. Granville Shaw, Mr. Harry Steinman, the immediate Past President of the Society, Mr. E. A. Brocklehurst, Sir Hugh Linstead, M.P., Secretary of the Society, Mr. F. W. Adams, Secretary and Registrar, and representing the Royal Institute Mr. Kenneth M. B. Cross, President, Mr. E. D. Jefferiss Mathews, Mr. Thomas E. Scott, Mr. C. D. Spragg, Secretary, and Mr. W. R. F. Ellis, Deputy Secretary.

Patrons of the A.B.S. Ball

The A.B.S. Ball will be held at Grosvenor House this year on 12 December. Patrons of the Ball, which will be in aid of the A.B.S. Homes Trust, are the Right Hon. Sir David Eccles, K.C.V.O., M.P. [Hon. F], the Right Hon. Patrick Hepburn, M.P., Minister of Works, the Right Hon. Viscount de L'Isle, V.C., D.L. [Hon. F], Colonel Gontran Goulden, T.D. [A], President of the Architectural Association, D. Plaskett Marshall [F], President of the Institute of Registered Architects, Lieut.-Colonel A. E. Henson, T.D. [F], President of the Incorporated Association of Architects and Surveyors, and N. James Rushton [L], President of The Faculty of Architects and Surveyors.



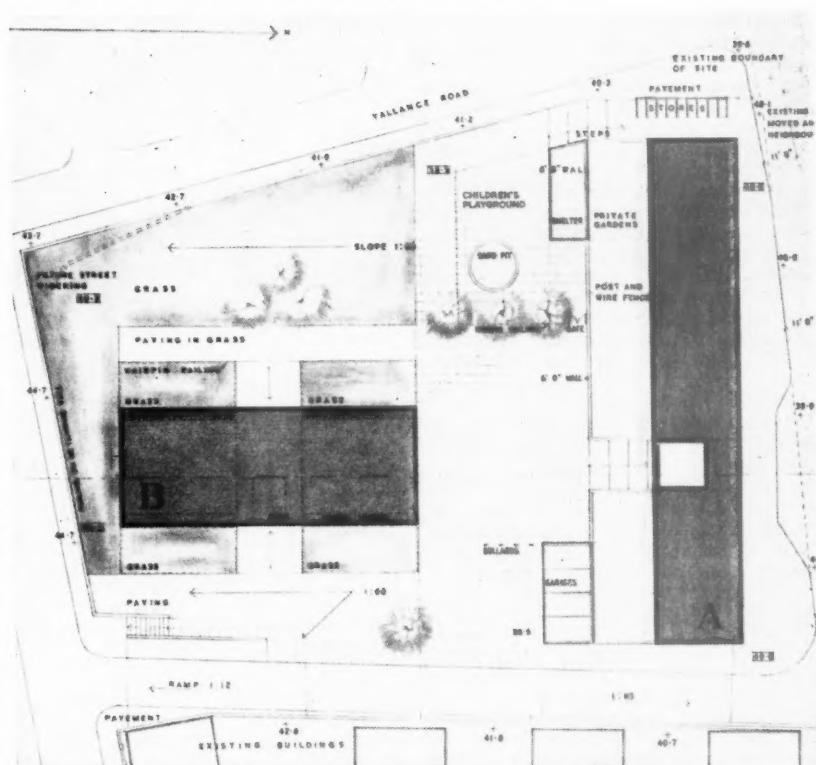
St. Peter's Hospital Site Housing Scheme, Stepney for the Director of Housing, London County Council

Architects:
Stillman and
Eastwick-Field [A/A]

Associate in Charge:
R. Smorzewski

THE ARCHITECTS were commissioned in June 1954 to design a housing scheme for the L.C.C. Director of Housing, R. J. Allerton, on the site of St. Peter's Hospital, Stepney, a building which was then being demolished. The site of 1½ acres was to be developed at 149 persons per acre, mainly with three- and four-room dwellings.

The more desirable solution, to contain all the accommodation within a single high block so as to leave a higher proportion of open space and raise most of the dwellings above the level of the rather drab surroundings, was modified after discussions with planning officers who were considering the possible development of surrounding areas. As a result the final scheme consists of two buildings: one four-storey block containing eighteen four-room maisonettes and one nine-storey block containing thirty-two three-room maisonettes and two five-room flats. Four garages are also included on the site and a children's playground and shelter.



Site plan. Block A four storeys: block B nine storeys. The garages have since been turned to face estate road

Nine-Storey Block. The main interest in the scheme lies in the arrangement of the maisonettes in the high block and these are therefore described first in some detail.

(a) *Accommodation.* This block contains two five-room flats on the ground floor and thirty-two three-room maisonettes on the other eight floors. The maisonettes are served by two lifts and one enclosed staircase. The basement contains the boiler-house for the whole scheme.

(b) *Planning of Maisonettes.* As can be seen from the drawings, the maisonettes are planned within a block 39 ft. wide with framed cross walls at 11 ft. centres. Access to the lower floors of the maisonettes is by way of enclosed corridors which run from the vertical circulation bay in the middle of the block to either end. Each corridor is 45 ft. long and 4 ft. 6 in. wide and is lit from both ends. Each corridor leads to four maisonettes, two on either side. The lower floor of each maisonette, containing entrance hall, kitchen and living room, occupies two bays' width between the central corridor and the outside of the block. The upper floor of each maisonette occupies one bay width across the whole block. An internal bathroom and w.c. are sited in the centre of the block above the access corridor.

The advantages of this planning arrangement are as follows: Because access is in the centre of the building, external wall space is not taken up by an entrance door and hall. This means that the block can be deeper and the cross walls can be closer spaced than is possible even with the most narrow-fronted maisonette blocks. This leads to a more economic construction as the block as a whole is more compact and floor spans are shorter. It also permits all the rooms to have windows across the full width of the external wall.

The internal access corridor should be much less objectionable than the external access gallery—particularly in high blocks. It should have some of the merits of the internal halls in point blocks but because of the natural light and cross ventilation, the block is not required to have two staircases.

No rooms have windows on common circulation areas nor are any windows overshadowed.

Communal circulation space is less than would be needed in either flats or maisonettes served by access galleries.

Assuming the block is sited on a north-south axis the living rooms either face east, in which case one of the bedrooms faces west, or west, in which case one of the bedrooms faces east. No room faces north.

(c) *Technical Considerations: Ventilation of Bathrooms and W.C.s.* Mechanical extract ventilation will be provided for the internal bathrooms and w.c.s. The scheme follows the systems adopted in L.C.C. schemes now being built: for each group of maisonettes a single vertical duct is proposed with 'shunt' branches to serve each w.c. and bathroom. The branches run parallel to the main duct for one-storey height and are required to

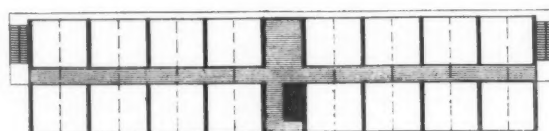
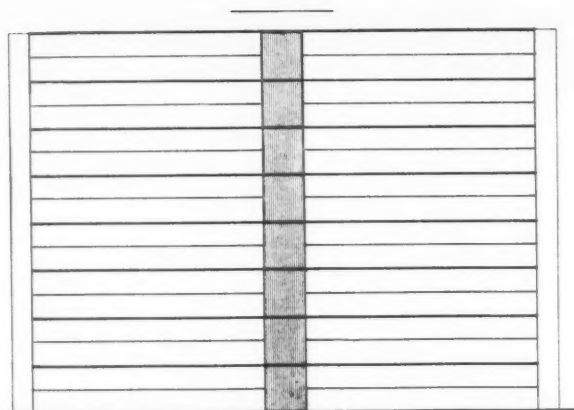
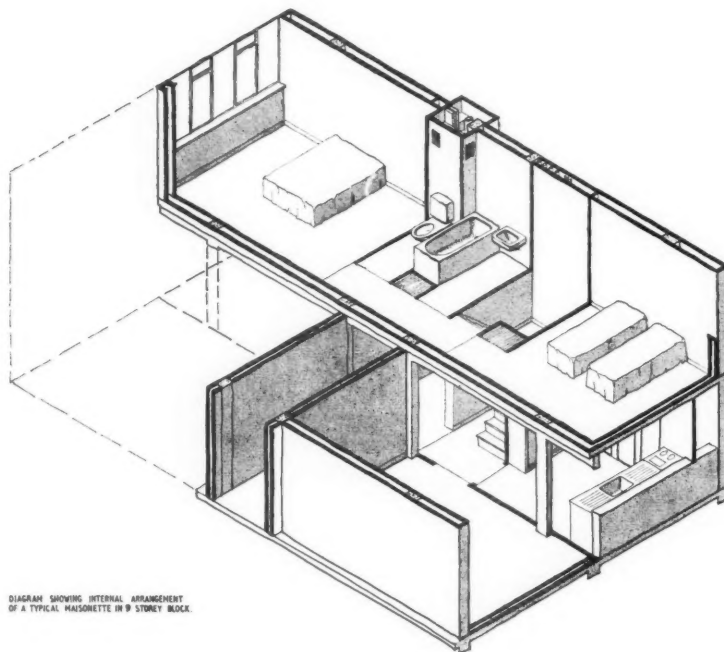


DIAGRAM SHOWING INTERNAL ARRANGEMENT OF A TYPICAL MAISONETTE IN 9 STOREY BLOCK.



prevent noise being transmitted from one dwelling to another. The ducts will be made of light-weight concrete units. On the roof a horizontal duct connects the four vertical ducts to the fan room. Duplicate fans are required under the regulations, to guard against the possibility of breakdown.

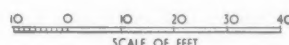
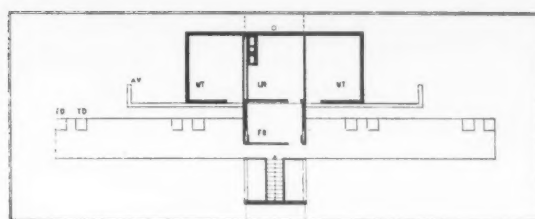
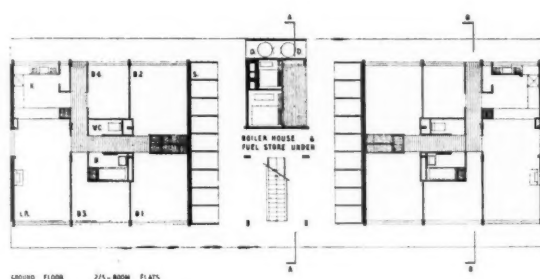
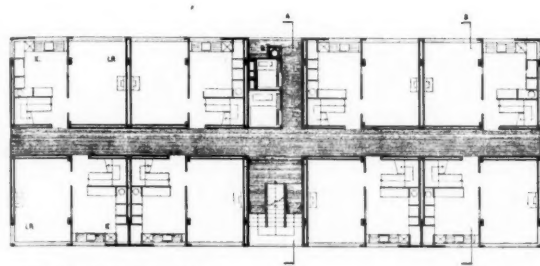
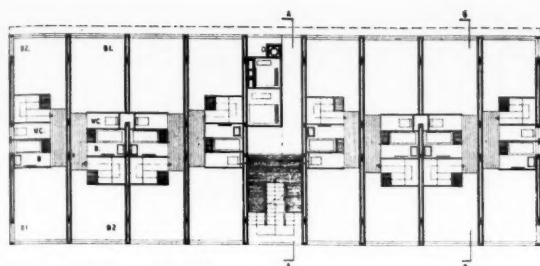
(d) *Soundproofing.* The integrated planning makes it more necessary than usual to design floors which will prevent, as far as practicable, the transmission of impact and airborne sound. It is proposed therefore to lay floor screeds over a 1 in. glass silk quilt.

(e) *Refuse Disposal.* Normal dust chutes are included in the scheme.

(f) *Lifts.* The block was originally designed with one eight-person lift, but a second four-person lift has been added at the request of the Housing Committee.

(g) *Escape Requirements.* Advantage has been taken of the new L.C.C. regulations for means of escape of July 1954, which permit blocks with open corridors to be built with only one enclosed staircase. As regards escape from the bedroom floor of

Diagram showing a possible arrangement of cross-over maisonettes in a large block = 128 dwellings on 16 floors



each maisonnette, the position is as follows: *Up to Fourth Floor* (i.e. bedroom floor of second set of maisonnettes), no alternative means of escape required as this floor is not more than 42 ft. from ground; *Sixth Floor*, a continuous narrow escape balcony provided, to connect with main staircase; *Top Floor*, hatches provided for emergency escape on to the roof, with access to top of main staircase by way of railed path.

Application of Design Principle to Larger Blocks. In the opinion of the authors the system of planning maisonettes described above could be used with greater economy in larger blocks as an alternative to point blocks or maisonette blocks served by external access galleries. The diagrams on page 408 show as an example a block containing 128 maisonettes on sixteen floors. A group of three lifts is suggested for the main vertical circulation with an external open staircase at either end connecting with narrow escape balconies from the bedroom floors.

General Notes on the Scheme as a Whole. (a) *Siting.* Basements in the old hospital extended over most of the site so that the site level is in places as much as 12 ft. below street level. To minimise the cost of filling

and the cost of foundations the finished level of the open part of the site is to remain 4 ft. below street level. Apart from the saving in cost, this arrangement will prevent children from running on to the adjacent main road, without the necessity for providing a high fence.

The two buildings are arranged on the site in such a way that surrounding buildings are not overshadowed. Although the existence of Blackwell Buildings adjoining the east boundary of the site has been taken into account, it has been assumed that they will shortly be cleared away and replaced by housing blocks of more modern design.

(b) *Children.* A constant anxiety for families living in high blocks is the safety of young children allowed out to play. No doubt supervised adventure playgrounds offer the best solution to this problem, but these are not as yet generally provided. A small enclosed playground for young children is therefore included in this scheme. It will have a shelter and a sand pit and will be informal in character.

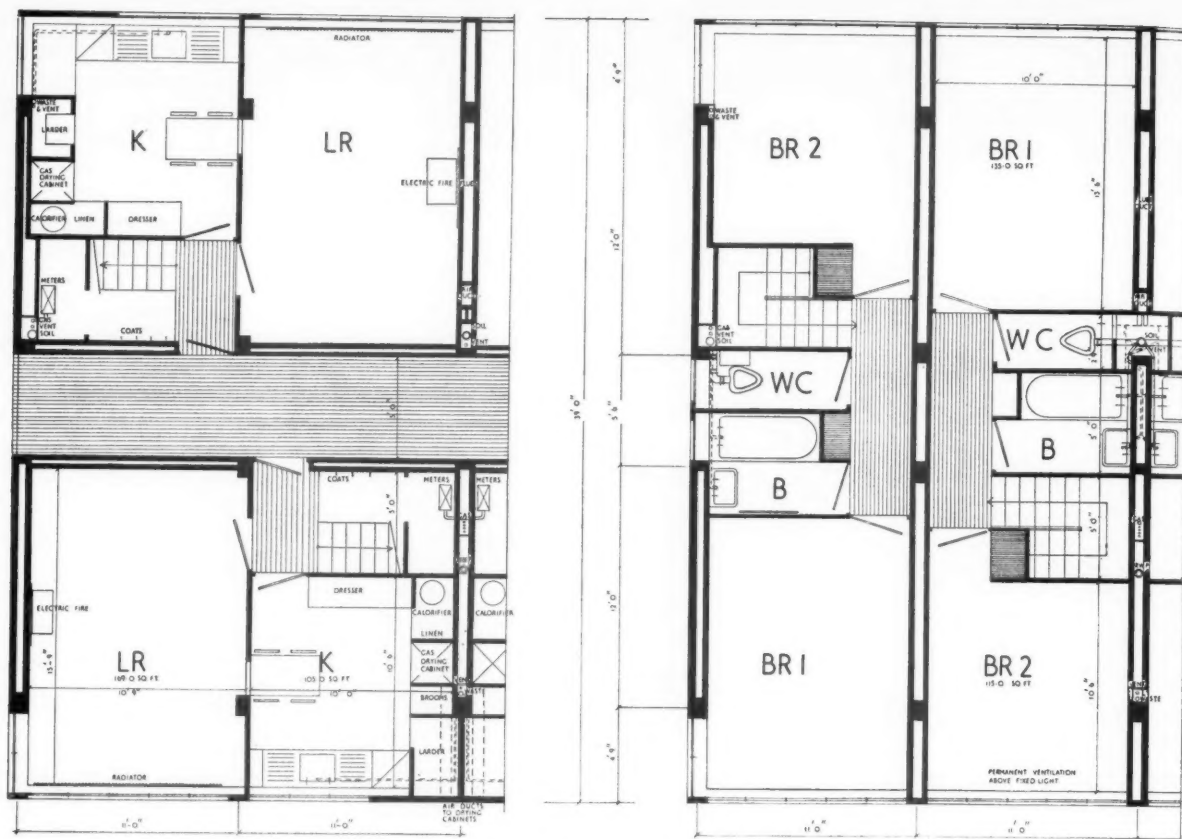
(c) *External works.* The aim has been to divide the open areas into large simple shapes to be paved or grassed. Narrow grassed margins have been avoided since

they are difficult to maintain and often lose their grass altogether.

(d) *Private Balconies.* The Housing Committee has accepted the architects' recommendation that in the three-room maisonnettes the private balconies should be omitted, and their floor area added to the area of the kitchens. The arguments in favour of this course of action are as follows:

Sun balconies, when they first became popular, were generally very small and were completely external, i.e. added to the face of the building. They were therefore not very expensive, but general observation shows that the use to which they are put for sitting on or for putting babies in prams in the open air is very limited. They may have a psychological value and they certainly are useful for drying washing, although this is not allowed, and as extra storage space, which is unsightly.

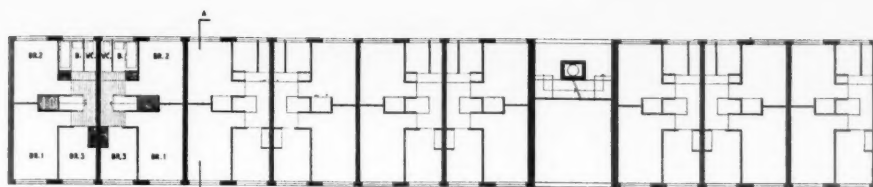
To make balconies of real use they would have to be considerably larger (40 sq. ft. is suggested) and, in high blocks especially, wholly or partially recessed in the face of the building. Balconies of this type would then cost nearly as much per sq. ft. as the building itself and the architects argued that unless the dwellings were sited where



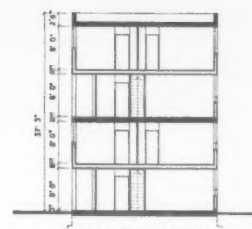
Three-room maisonettes, nine-storey block; plans lower and upper levels. The plans have since been condensed slightly to reduce the width of the block by 6 in.



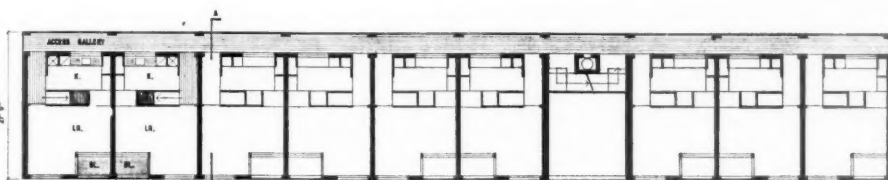
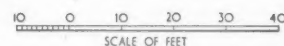
Four-room maisonettes, four-storey block; plans lower and upper levels. Heating is by radiators in the living rooms with electric fires for occasional use



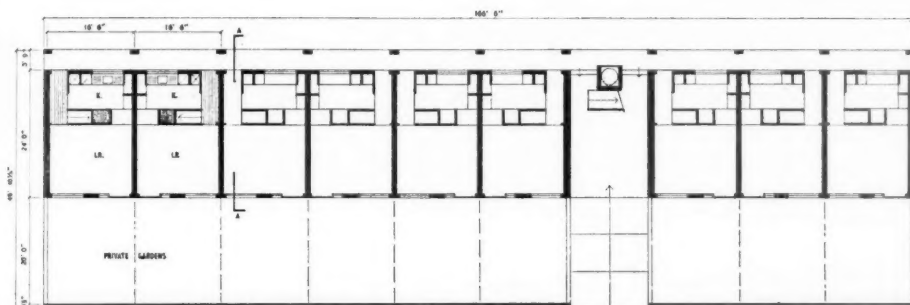
MAISONNETTES - UPPER LEVEL - FLOORS 1 & 3



SECTION A - A



MAISONNETTES - LOWER LEVEL - FLOOR 2



MAISONNETTES - LOWER LEVEL - GROUND FLOOR

there were fine views, the area of the balcony would be appreciated far more as an addition to the kitchen where the extra space could be enjoyed all the year round. These dwellings will be equipped with gas drying cabinets so that the loss of clothes drying space will not be serious.

(e) *Facing Materials.* Exposed edge of reinforced concrete frame in high block and floor slabs in low block. Infilling panels of yellow brick (stock or sand-lime). Standard metal windows, over sill walls of western red cedar weather boarding on solid backing.

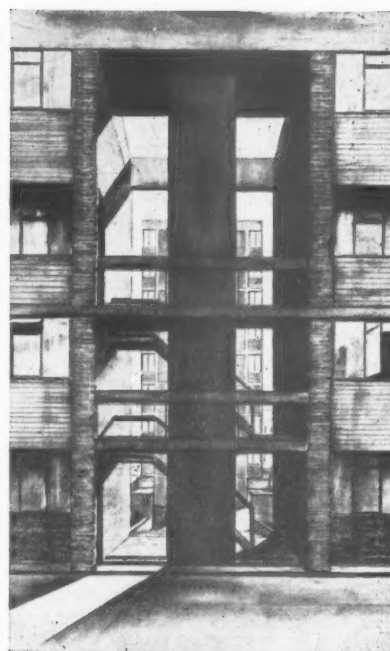
(f) *Heating.* A central hot water and a limited central heating scheme with oil-fired boilers have been approved by the Housing Committee. Statistics show that in spite of having to make regular weekly payments throughout the year for these services, tenants who have central heating and hot water prefer this arrangement to coal fires with back boilers.

One difficulty has been that central heating schemes have generally been designed to provide heat throughout the dwellings. They have therefore provided a much higher standard of heating and have thus been more expensive in running cost than the usual alternative: a single fire in the living room with intermittent heating

by electric fires in the bedrooms. In this scheme therefore central heating has been limited to providing, by a large radiator in the living room, the amount of heat which would otherwise have been obtained from an open fire. Its continuous action will undoubtedly provide some background heat in the kitchen and bedrooms, but for positive heating of these rooms power points will be provided for tenants' own electric fires. An inset electric fire will however be fixed in the living room for occasional use in the summer months when the central heating is off and for topping up on exceptionally cold spells.

The hot water service will be completely separate and will operate throughout the year. Each dwelling will have a 27-gallon calorifier having a four-hour heating-up period.

Four Storey Block. This is a straightforward design of maisonettes planned within cross walls at 16 ft. 6 in. centres. It contains the larger dwellings and half have private gardens. Three out of four rooms in each maisonette face south and overlook the open parts of the site. The staircase and access way through the block are placed opposite the end of the high block so that no windows are directly overshadowed.





Airside view, with top of the control building in background

The Central Terminal Area, London Airport South-East Face Passenger Building

Architect: Frederick Gibberd, C.B.E. [F]

THE LONDON ARCHITECTURE Bronze Medal for 1955 was awarded in favour of the passenger handling building, Central Terminal Area, London Airport, designed by Frederick Gibberd, C.B.E. [F].

Mr. Gibberd was commissioned to design the first group of the Terminal Buildings at London Airport in 1950. The site for the passenger building was fixed by the overall operational scheme and occupied the south-eastern face of the central diamond.

The function of the building is to deal with the movement of passengers and their baggage through the formalities from landside to airside with the minimum of inconvenience; to provide facilities for passengers' friends; and for spectators.

The outside appearance of the building is derived from the development of the plan and is an expression of the various functions. The basic parts of the building are planned on two levels with passengers passing through the channels at first floor level and the baggage on ground level, with

the two brought together in the Customs Hall. Thus the necessary cross circulation on the ground floor of baggage and other services does not interfere with the passenger flow. The first floor level was kept low to avoid taking the passenger to a higher level than necessary and this is expressed on the elevations.

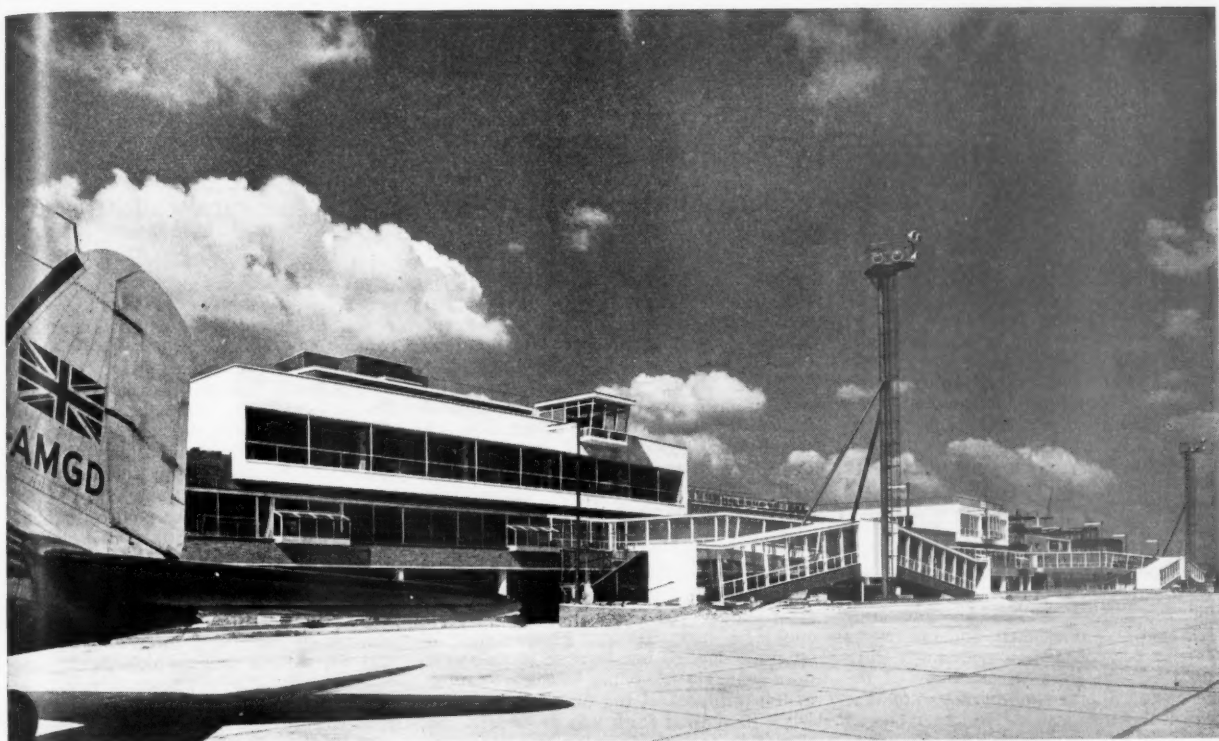
The landside elevation consists at ground floor of a low covered way behind a series of columns faced in polished granite, off which are the entrances for both passengers and baggage to the channels. Above this is the concourse, which is expressed as a glass wall which runs the complete length of the building. On entering the building the low ceilinged entrance halls contrast with the height and spaciousness of the concourse. The location of the channels is reflected in the window design.

The airside elevation is linked to and builds up from the airfield. The ground floor consists of a covered service road where the baggage trucks collect and deliver to the channel conveyor belts. The

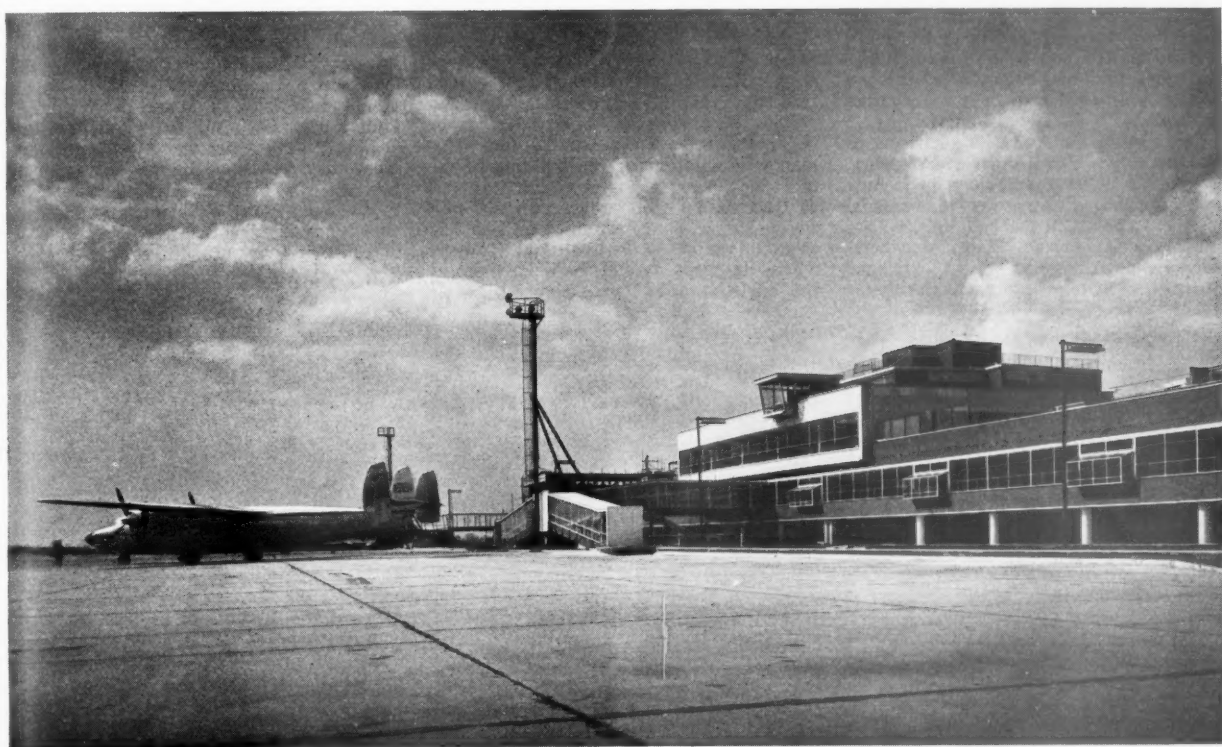
first floor passenger level has a projecting gallery which is the connecting link between the channels and bridges and ramps leading down to the aircraft. In the centre of the building the main concourse is brought through to the airside in the form of the restaurant from which there is access to the roof gardens on each side.

The upper levels have been designed as a series of terraces for spectators with cafeteria and tea rooms in the centre and form in effect a grandstand overlooking the airfield. The roofs have been laid out as gardens with grass lawns, beds of shrubs and flowers and paved with various materials.

A brown brick was used as one of the main materials because it was economical and required little maintenance but was at the same time a good contrast to the green grass and the aluminium of the aeroplanes. Attention was also paid to the appearance of the building from the air, as it was found that the gardens and paving patterns, together with the surface treatment of flat roofs, played an important part.



South-east face passenger handling building, airside view



Another airside view showing bridge and ramps and the long window of the restaurant

Actor and Audience

by Richard Leacroft [A]

R.I.B.A. Athens Bursary Report 1954

A study of the basic principles underlying the design of Ancient Greek theatres and their application to modern theatre design

THE BASIC element upon which any theatre architecture depends is the fundamental relationship between the actor and his audience; however fine the architecture, if this element is not properly provided the building becomes inadequate for its purpose. It is in attempting to arrive at this correct relationship that we find ourselves on highly controversial ground.

The elementary relationship of an actor to his audience has become enmeshed in a variety of problems; problems which come between the participants in the drama and tend to distract the theatre designer from his primary object.

In an attempt to free the author from these generations of shackles this study was hopefully undertaken, and the results are here presented in a necessarily condensed version from which many of the plans, notes and photographs of the various theatres visited, which appeared in the original report, have been regretfully omitted.

The generally accepted theory that the Greek theatres developed directly from the circular threshing-floor (*Pl. 1*) would seem to be an over-simplification of the facts, in that it does not take into consideration the various rectangular theatral areas such as are found in the Palaces of Knossos (*fig. 1, Pl. 2*) and Phaestos (*fig. 2*) in Crete, or in the Agora of such centres as Lato (*fig. 3*), Gournia, Poliochni, Dreros and others; nor does it include such mainland theatres as the archaic examples to be found at Rhamnous, Ikaria, Thorikos, Chaironeia and elsewhere. Although there is no direct evidence linking the first group with the latter

through the centuries separating them in time, nevertheless it is quite possible that the Cretan form found its way to the mainland and thus influenced later building.

While it is certainly true that the earliest forms of dance were often circular in motion and in many cases were performed around a central object, either altar or sacred tree, nevertheless there were also dances which were serpentine in character. The threshing-floors found in almost every village undoubtedly did provide a ready-made surface for dancing, and as many were built out on the side of a slope (*fig. 4*) they also provided a ready-made place for spectators; undoubtedly this arrangement did suggest a form which could be used for the presentation of religious dances, but because these places were available and could be easily adapted to the purposes of the dance it does not follow that their form was necessarily the ideal arrangement for dance presentation.

While the dance retained its communal character in which all the village participated, then a circular or semicircular arrangement of any audience was certainly suitable, but as soon as the dance was presented to or before a person or persons, then the dance had to take on a directional pattern, and this directional character would be increased when the dance began to evolve a dramatic content. This may well account for the building of the theatral areas at Knossos and at Phaestos as rectangular 'orchestral' areas, with steps—for seating?—arranged on one side as at Phaestos, or on two as at Knossos where the steps contain between them at the angle a raised stone slab which Sir

Arthur Evans has suggested may have served as a royal box.¹ It is true that some dances of Crete were sinuous in character rather than circular and so were more suited to the rectangular shape, but it is also possible that the dances were of a limited dramatic character, and most certainly they were directed towards the royal party. The evidence against the performance of drama in any form is purely negative, but it must be admitted that the pictorial evidence of the painted frescoes showing dancers in action does not illustrate any particular form of characterisation suggestive of dramatic content.

While the directional character of the rectangle made it a suitable shape for the purpose of presenting these dances, it is also the natural shape which would have evolved if a group of audience were to be ceremonially seated. In the first instance the natural material for such seating would be wooden benches, or *ikria*, some 6 to 10 feet long, arranged one behind another up the slope of a hill (*fig. 5a*); this arrangement of wood seating would eventually be perpetuated in stone, resulting in such structures as the dancing-floors and agora seating of Crete, or in the rudimentary theatre forms of Ikaria (*fig. 6*), Rhamnous (*fig. 7, Pl. 3*) and in the central, and earliest, section of seating at Thorikos (*fig. 8, Pl. 4*). The next stage in the development may well have been that suggested by Anti in his reconstructions of the theatres at Thera, Syracuse and Athens, where he suggests that the first rows of

¹ Sir A. Evans, *Palace of Minos, Knossos*, London, 1921-36. J. B. S. Pendlebury, *A Handbook to the Palace of Minos at Knossos*, London, 1933.

Pl. 1: The threshing floor at Gramatiko



Pl. 2: The theatral area, Knossos. General view from viewpoint A, *fig. 1*



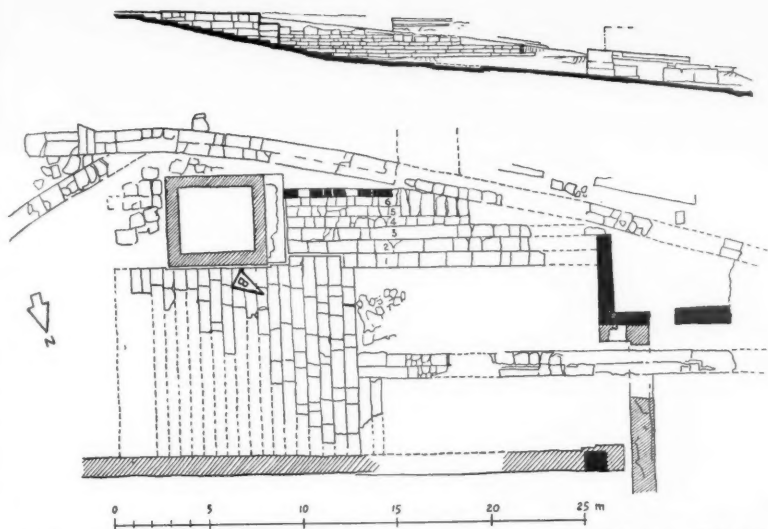


Fig. 1: Knossos. The theatral area showing the orchestral area, and the two flights of steps enclosing the 'royal box'. After Sir A. Evans. *Palace of Minos, Knossos*, Vol. II, fig. 362, Macmillan

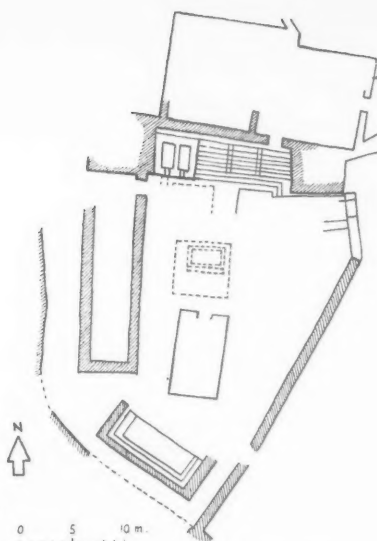


Fig. 3: Lato. Theatral area in the agora

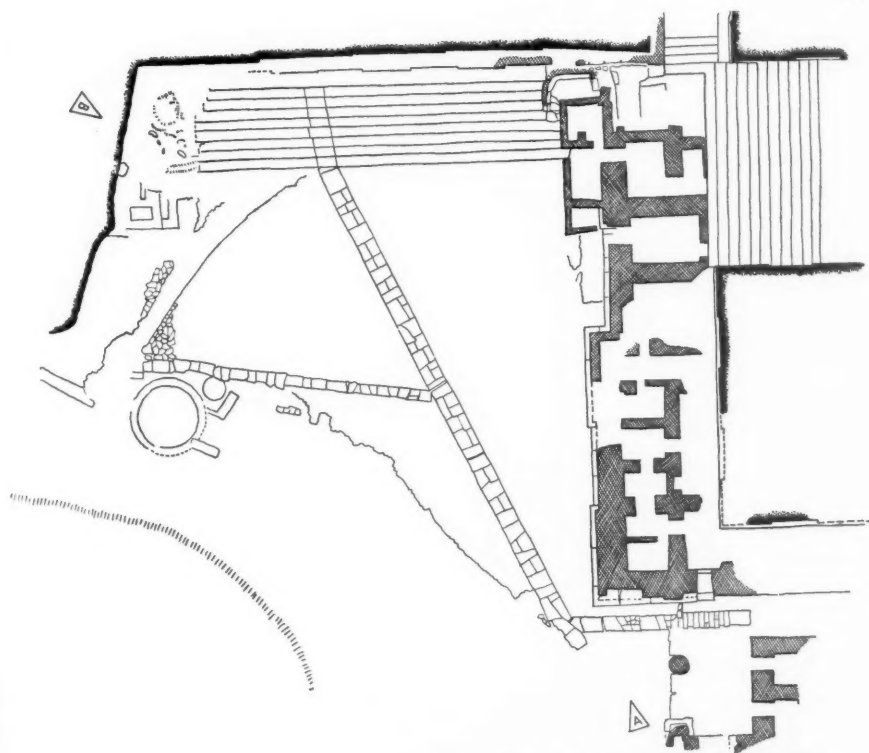


Fig. 2: Phaestos, the theatral area. Steps backed by a high wall face the orchestral area. Entry to the Palace is by the flight of steps top right. (After L. Pernier. *Il Palazzo Mionico di Festos*, pl. v)

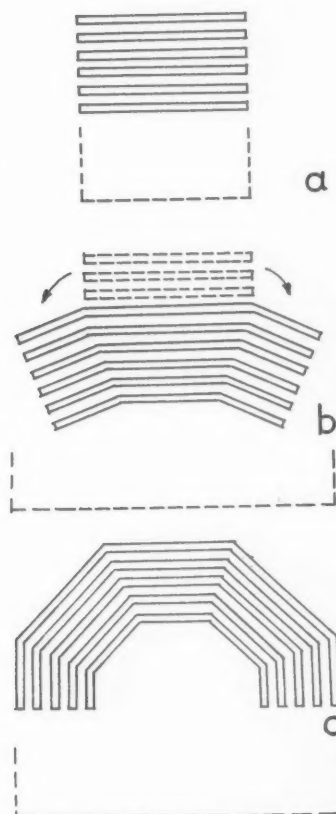


Fig. 5



Fig. 4



Pl. 3: Rhamnous. View of the theatre from point A, fig. 7. In the foreground are the remains of the stelai bases and prohedria, and in the rear the wall to the acropolis



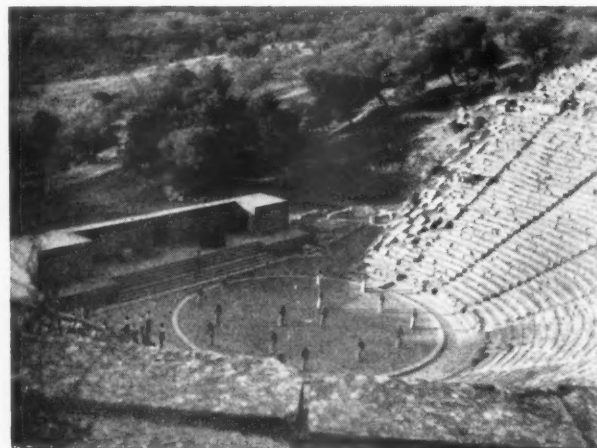
Pl. 4: Thorikos. The view from point B on the plan, fig. 8. The annulemmata (B-A) of the 3rd century B.C. addition can be seen rising above the general slope of the hill in the upper right-hand corner



Pl. 5 a, b: The Theatre of Dionysus, Athens. Two photographs from a series designed to illustrate the relationship of the actor to his audience as seen from the comparative positions of a. The Logeion. b. The centre of the orchestra



Pl. 6: Argos, Larissa. Dated by Dilke to the 5th or early 4th century B.C. A departure from the normal horse-shoe arrangement generally associated with Greek theatres, which exists here only in the first few rows of seats; beyond these the cavea becomes highly directional and consists of seats cut from the rock. This fan-shaped plan allows almost ideal viewing conditions but involves great distances to the rear seats



Pl. 7: Epidauros. View from the rearmost seats of the cavea showing a dress rehearsal of 'Hippolytus' in progress. The stage buildings are a modern scenic background provided for this production. Note the foundations of the proskenion wall which are just visible at the base of the steps

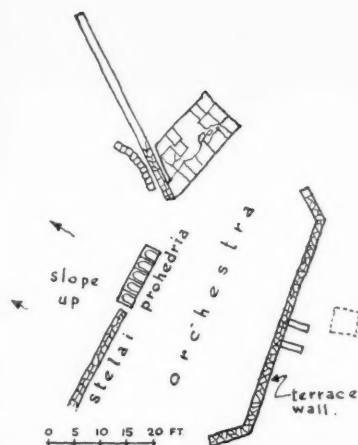


Fig. 6: Ikaria. Here are little more than the elementary necessities of a theatre. In its earliest form the theatre probably dates to the 5th or 6th centuries B.C. The existing remains have been dated to the 4th century B.C. (After Papers of American Society, v, 1886-89)

timber seating were extended by further benches to form a trapeze-shaped orchestra.²

This trapeze form (fig. 5b) would become necessary if the 'important personages' seated in the second row of the earlier arrangement, considering themselves at least the equals of those in the front row, required front-row seating. It would at the same time accommodate more audience nearer to the orchestra whilst still retaining a shape which permitted any dramatic use required by the dances of these early times. In the theatre at Thorikos (fig. 8) we have visual evidence of the manner in which a Greek theatre may have developed and in

² *Teatri Greci Arcaici*, Carlo Anti, Padua, 1947.

spite of 'the irregular and mean workmanship of the interior' mentioned by Cushing³ it seems difficult to believe him when he suggests that the citizens of Thorikos stood 'alone among their fellow Greeks in the open violation of almost every law of architecture in the construction of their theatre'. Rather may we believe that the then current architectural laws may well have been more closely related to the forms which are still preserved in this provincial town, uncovered by the alterations and rebuildings which were to mask the early remains of so many theatres in the manner of the theatre at Athens.

Whilst then the rectangular relationship of the cavea, or auditorium, to the orchestra may well have been the first form adopted, the shape inevitably began to change as it became imperative to accommodate more and more audience, all of whom would desire to be seated as close to the dancers and singers as possible. It should be remembered that these theatres, unlike our own, were used only for theatrical purposes on one or two occasions in the year and at these times it was necessary to accommodate the whole population of the district together with additional visitors; from this it may be seen that, whilst the dances and songs may have had some slight dramatic content at this time, the need to allow for direct address was heavily outweighed by the overwhelming need to accommodate an enormous audience. Our own 18th-century theatre form in Britain was changed, not by the requirements of drama, but by the commercial pressure for increased audiences.

The natural result was the evolution of the horse-shoe cavea, possibly in the first place being a straight-sided figure (fig. 5c), but eventually developing around a circular orchestra. This circular form reached

³ W. L. Cushing, *Supplementary Report, The Theatre of Thorikos*, *Papers of the American School*, iv, p. 23.

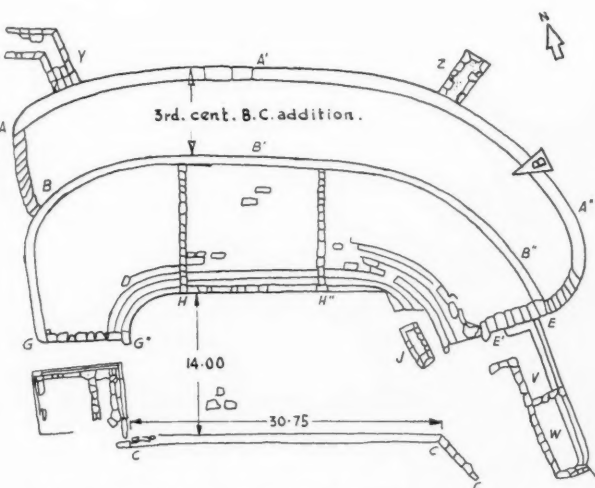


Fig. 8: Thorikos. This 5th, or possibly 6th, century B.C. theatre developed in three stages: 1. The rectangular area of seating, H—H'—B', facing a rectangular orchestra. 2. The addition of curved seating on either side. 3. The 3rd century B.C. addition at the rear built up above the general slope of the ground

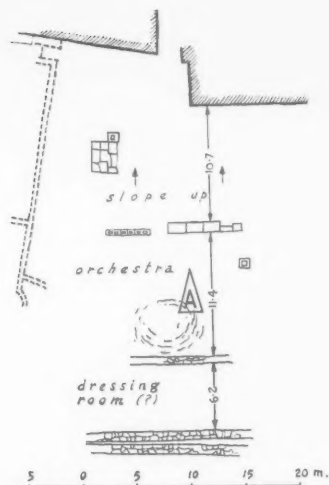


Fig. 7: Rhamnous. Situated at the foot of the wall to the acropolis, this theatre is considered to be contemporary with that at Ikaria. (After Bulle, *Untersuchungen an Griechischen Theatern*, 1928, Pl. 1)

architectural perfection in the Hellenistic theatre at a time when the development of drama had largely nullified its use. That this was the case was largely due to the example set by the theatre of Dionysus in Athens, the plays first presented here being later performed in the demes of Attica.⁴

In the theatre of Dionysus at Athens (fig. 9, Pls. 5a, b, 8) the extant 6th-century evidence is generally accepted as forming part of the retaining wall to the earliest known orchestra,⁵ and this wall is now presumed to have followed a free form, but whilst this evidence relates to the retaining wall, there does not seem to exist any direct evidence as to the shape

⁴ R. C. Flickinger, *The Greek Theater and its Drama*, Chicago, p. 38, 1926.

⁵ *The Theatre of Dionysus in Athens*, A. W. Pickard-Cambridge, Oxford, 1946.



Pl. 8: Athens, the Theatre of Dionysus; view from the very furthest seat in the cavea. It is just possible to note a figure at the far side of the orchestra

of the earliest orchestra itself. Although this has usually been spoken of as being circular, the records regarding the use of *ikria* would seem to point towards a shape more directly suited to the arrangement of straight benches.⁶ The shape of the orchestra in the theatre of Pericles which followed and which was completed in 443 B.C. is also in doubt, but it is known to have been backed by a long straight retaining wall (fig. 9 a-a). It is therefore highly possible that the early development of the theatre may well have been along the lines outlined above, especially when one realises that the theatre at Ikria, where Thespis introduced the first actor in the first half of the 6th century B.C., and with him the rudiments of drama, and where Susarion invented and first performed the comic Chorus⁷ perpetuated as we have seen not a circular but a rectangular orchestra. By the 4th century however the circular orchestra had evolved in Athens and this plan form, once established, persisted in spite of the fundamental changes which then took place in the performances.

For a time then the rectangular form of acting area appears to have been largely but not altogether superseded, but it was to make a come-back later when the actor required a raised stage for his performances.

⁶ Flickinger, *op. cit.*, p. 68.

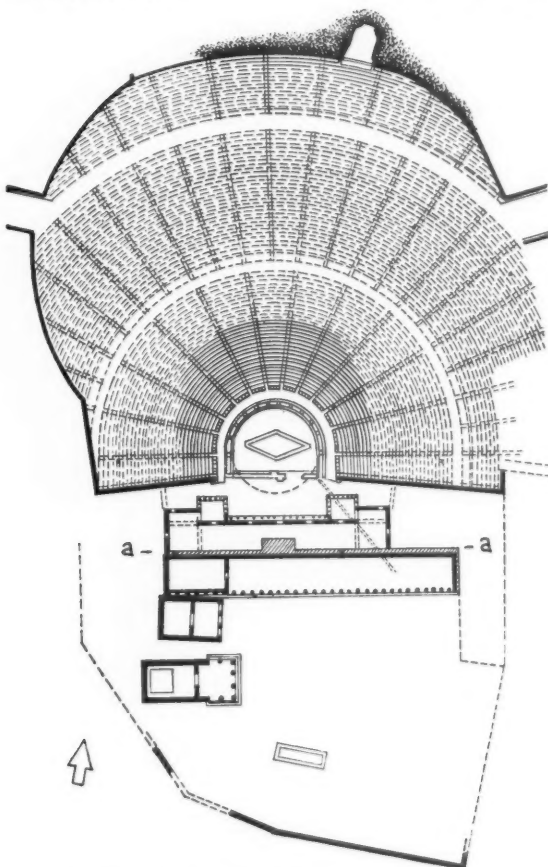


Fig. 9: Theatre of Dionysus, Athens

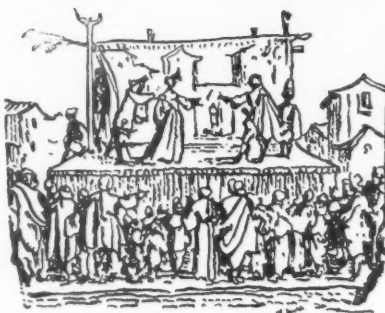


Fig. 10: (After Callot-Hodges)

With the introduction of drama and the actor it was inevitable that the whole nature of the theatre should undergo a change, in that the audiences were no longer solely concerned with looking at the dances of a chorus but had now to divide their attention between them and an individual actor. What then was the relationship between this actor and his audience?

When one man tells a tale he can control an audience disposed before him in such a manner that he can include all within a simple gesture of his hand, and can make a point with a single facial expression. If his audience are arranged all round him, then it becomes necessary for him to repeat his expressions or direct remarks or, inevitably by-pass some of his audience. In these conditions a part of his audience do not receive the full benefit of the

⁷ R. C. Flickinger, *op. cit.*, p. 38. Pickard-Cambridge, *The Dramatic Festivals of Athens*, Oxford.

actor's attention to which they are entitled at all times. It is not suggested that an actor, like a lecturer, must always be facing his audience in order to make every point tell, but the arrangement of the parties must be such as to allow of this happening whenever the direct approach is required, even if this means limiting the number of audience who can be accommodated at any one time.

The introduction of a second and third actor reproduces these conditions in width, so that a simple 'acting area' tends to be long but narrow in depth, with an audience disposed facing the longer side. Just such an arrangement can be seen at Thorikos. This acting area may be a flat space of ground on which the actors perform with the audience seated in tiers before them; or when the audience are standing, and eventually also when seated, it may become a 'stage' raised above the ground either as a light timber or permanent stone structure.

In the earliest form of theatrical presentation this locus was sufficient, as the theatre 'company' consisted of one 'actor' and a chorus, but with the introduction of further actors and the development of the drama it was inevitable that the dramatic possibilities of the 'surprise' entry should be recognised, and this required the introduction of a masking element. The acting area was therefore backed by a simple curtain allowing entry through its folds, or by a timber or stone wall with doorways which at the same time provided the actors with the basis for a dressing-room. Here then we arrive at the simple stage form which was to persist through the centuries, and which may be seen in the majority of illustrations where strolling players are depicted (fig. 10).

The earliest depicted forms of stage for dramatic performances are to be found on Greek vases from Southern Italy and Sicily, and they are seen to be rectangular on plan, presenting their longer side towards the audience (fig. 11). The actual form of

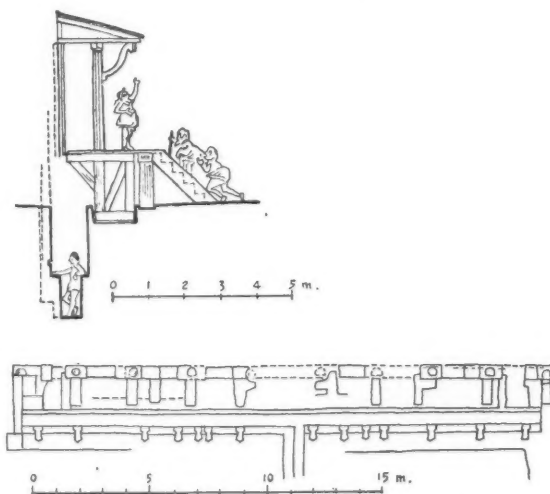


Fig. 11: Temporary stage for phallic comedy (After Bulle)

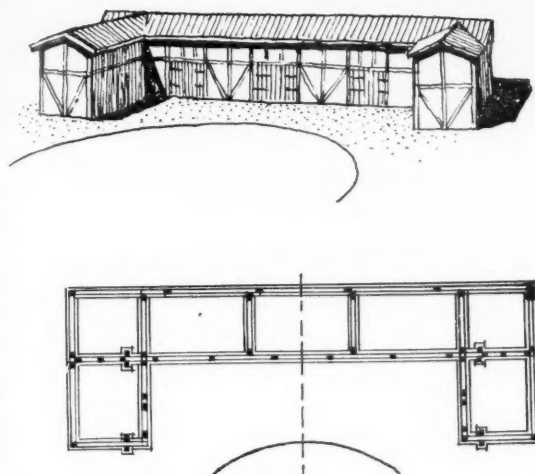


Fig. 12: Priene. (After A. von Gerkan)

one such stage is suggested by Bulle in his reconstruction of a Phlyakenbühne, or temporary stage for the performance of phallic comedy.⁸

The introduction of the skene or stage building—the original meaning of skene is booth or hut—together with the introduction of that most useful of dramatic features, the opening at centre back, sounded the first warning note of the inevitable decay of the cavea designed with an orchestral focus. This probably took place towards the end of the 6th or the middle of the 5th century B.C., when the first skene was erected.⁹ Whether or not a raised stage, as distinct from the orchestra, developed at this time is comparatively unimportant to this discussion. What is important here is that, stage or no stage, the action would inevitably begin to centre around these entrances, and this point is emphasised by the framing-in of this area by paraskenia, or side-buildings projecting forward from the main skene building, during the 5th century B.C. (fig. 12).

The introduction of the paraskenia presented the 'producer' with new points of entry and exit arranged in these wings and allowed the author greater flexibility in the geography of his plot. It is important to note that the introduction of all these entrances not only directed the attention of the audience towards these points but inevitably led to the need for an audience arrangement providing a clear view of these areas. This directional condition was a necessary feature long before the later introduction of scenery underlined its purpose.

By the 4th century B.C. the character of the drama was slowly changing, the art of acting was reaching a new peak, and to quote Margarete Bieber . . . 'the contest for actors furthered the perfection of professional skill and virtuosity. This tendency found a desired field of activity

⁸ *Untersuchungen an griechischen Theatern*, München, 1928. Bulle, H.

⁹ *The History of the Greek and Roman Theater*, M. Bieber, Baltimore, 1947, p. 32.

in a new Hellenistic type of drama, the Mimos, which was played without masks, and thus made facial expression possible' . . . 'The high development of the art of acting in the 4th century demanded, for the most esteemed actors, as distinguished a place of action as possible. The chorus, on the other hand, was neglected to such an extent in tragedy as well as in comedy that the classical orchestra became too large for it in the dramatic plays, although at the same time, of course, the lyrical choruses in all periods required this space. The favourite drama of the Hellenistic audience, however, was no longer tragedy but New Comedy. In this the aim of the poet was not, as in Old Comedy, the comic situation, but the portrayal and clear delineation of the individual characters. It is, therefore, of prime importance to make these individual figures visible to the audience with relief-like precision. This led to a raised stage for the first time in Greece.'

At this point we come face to face with the ideas inherent in western drama for the first time. Until now the elements of drama—the mask, the enveloping clothing and the relationship between the actors and the chorus—had all contributed to a sculptural form of drama which could still be viewed 'in the round'; but with the entry of facial expression a more directional relationship between the actor and his audience became essential. Ideally a new theatre form should now have been designed with a raised stage and a cavea focused on it, but this was hardly possible and inevitably a compromise solution was evolved.

We have seen that the long rectangular acting area became the accepted shape in the Greek theatres even before a raised stage had developed (fig. 12). When a raised stage was developed the earlier acting area enclosed by the paraskenia was filled in by a logeion or platform, supported at the front by a proskenion or colonnade of free-standing columns or attached pilasters. This had the same

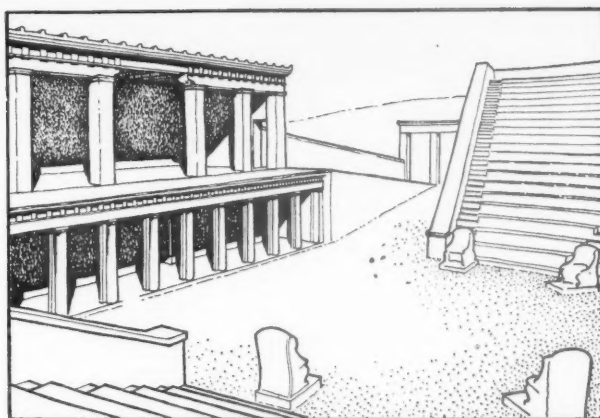


Fig. 13: Theatre of Oropus. (After Bieber)

rectangular plan as before and was backed by the upper storey of the skene building, the front wall of which was pierced by numerous openings or thyromata (fig. 13).

These thyromata replaced to a certain extent the doorways in the skene wall, which were now moved back in some instances to the rear of the area enclosed behind the thyromata. It is generally considered that these openings could be curtained off or masked by inset panels and were used as required to provide either 'inner rooms' or normal entrance doorways.

The space behind these thyromata cannot however have been used as fully developed 'inner stages', as the audience seated in the typical cavea of the period would not have been able to view the action within. It is more likely that they performed the function attributed to the mansions of the medieval stage; on the opening of the curtain to a particular thyroma the stage directly before this area would become related to this inner room and could be used for the portrayal of action supposedly taking place within. A similar and more closely related convention can be seen in the illustrations of the performances of the plays of Terence in the 15th century A.D. (fig. 14).

That these scene buildings when they first arrived should be situated beyond the orchestral area is only to be expected when we realise that their original function was to provide a background to the action in the orchestra and at the same time include the necessary points of entry; but as the action became centred in this acting area the whole structure in turn moved closer to the audience. In the earlier theatres the skene was situated clear of the orchestral circle but in the majority of later theatres, as at Delos, Priene and Magnesia, and in the ideal theatre described by Vitruvius (fig. 15), the front wall of the skene was tangential to the orchestral circle, which is here considered to be the circle of the front row of seats, while the front of the proskenion cut across the circle on the line of an inscribed square.



Fig. 14: Theatrical settings. (After the Lyons Terence, 1493)

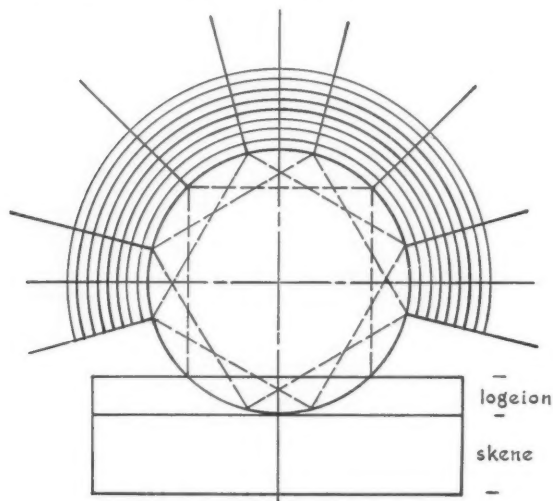


Fig. 15: Vitruvius, Theatrum Graecorum

At this point in the development of the theatre we have a compromise solution between two sets of circumstances: on the one hand a cavea designed to view a sculptural performance of a non-directional nature taking place in the orchestral area and on the other hand a stage designed for 'direct audience address' which ideally required an audience arranged in straight lines before it. It is in the nature of evolutionary building that outmoded forms should continue in use, adapted, as well as circumstances permit, to new requirements. It is this situation that is found in the typical Greek theatre, the possible exceptions—result of accident rather than design?—being the theatres of Argos (Pl. 6) and Pergamon, where the greater part of the cavea is fan-shaped and therefore approaches as closely as conditions permit to an ideal seating shape related to the stage.

That the problem arising from this shifting focus of attention was one of which the Greeks were conscious can be seen from their treatment of the cavea seating where it impinges on the orchestra. In the early examples the lowest row of seats was set out on a single radius for the whole of its horse-shoe form (fig. 16a) as

at Delphi, Delos, Argos and Megalopolis; but as the focus moved from the orchestra the extensions of the horse-shoe beyond a semicircle were first of all moved back and became straight lines tangential to the semicircle (fig. 16b) as at Athens; and then, in the last stage, these legs were treated with greater refinement and became small segments of larger circles, as can be seen at Epidauros (fig. 16c).

The need to keep the audience always before the actor and not surrounding him is underlined by the omission of the outer kerkides of the epitheatron at Epidauros (fig. 17, Pl. 7), and as the desire for a closer link between the actor and his audience grew we find this omission repeated and extended until finally the Roman form of theatre is reached where the cavea is reduced to a semicircle but with the same form of rectangular stage arranged before it (fig. 18).

Any tendency that might have arisen during this period of transition to plan the cavea as a fan-shape would have been offset by the growing need to erect these buildings as isolated structures unrelated to a hill-side, and therefore having an external architectural form which could be more readily resolved if the semicircular

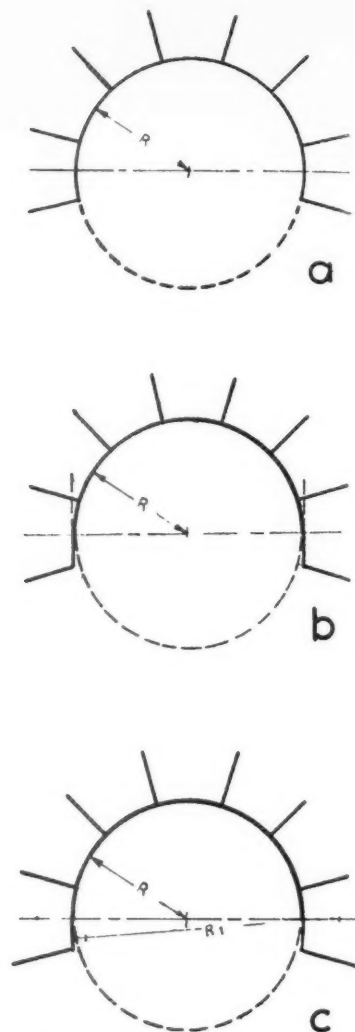


Fig. 16

form were adopted. At the same time the great distances involved in the use of the fan-shape where large audiences were to be accommodated (Pl. 8) would also have weighed against the use of this plan shape. Apart from the obvious difference that the ancient Greek theatres were uncovered and lay open to the sky, in contrast with the majority of our modern buildings, the main point of difference lies in the modern desire for realism; a requirement which calls for an intricate scenic arrangement capable of simulating any and every experience of nature. Yet this desire as such is no new thing, it may be noted at most periods of theatrical development.

The modern theatre may be visualised as two separate entities, an auditorium and a stage, the one remote from the other and separated by a fire-resisting wall; a wall which also serves the purpose of a masking element, concealing the intricate machinery required for the simulation of nature. This scenery is revealed to the audience through

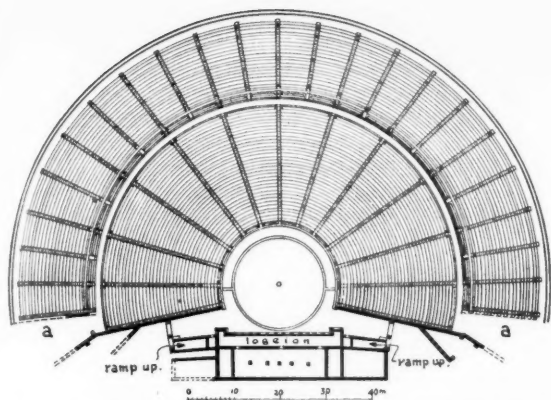


Fig. 17: Epidauros. The cavea was designed by Polykleitos about 340 B.C., and the stage buildings are dated to the 2nd or 3rd centuries B.C. Note the omission of the outermost kerkides of the epitheatron at a-a

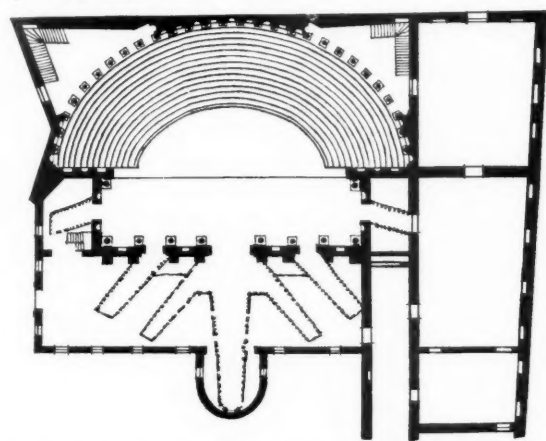


Fig. 19: Teatro Olimpico, Vicenza, 1580, by Palladio. (After Durm)

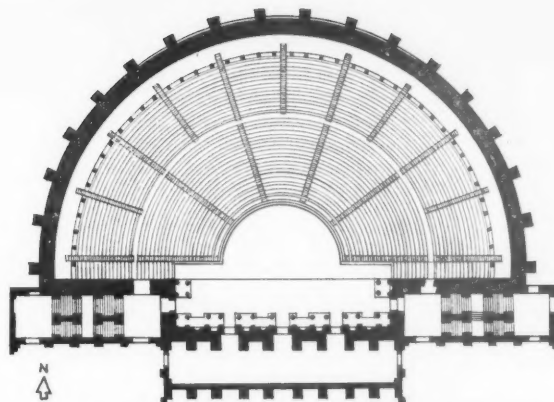


Fig. 18: Herodes Atticus, Athens. A Roman odeum or music hall, built c. A.D. 160

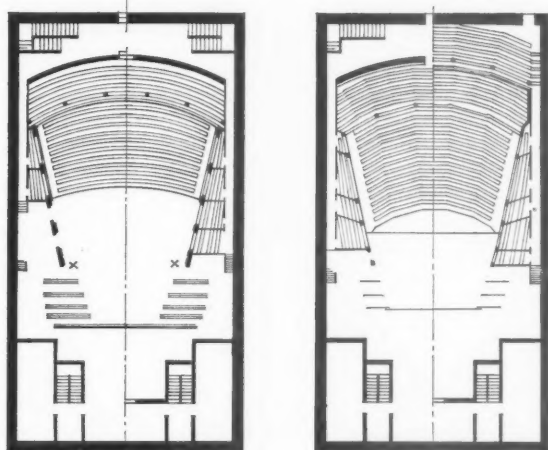


Fig. 20: The Theatre Royal, Drury Lane. Left: the theatre as originally designed by Wren (after a reconstruction by the author). Right: the theatre as altered by Robert Adam. Note the encroachment of the seating on the stage area

a picture-frame hole in the proscenium or masking wall. The division of the theatre whole into two parts was due to two main considerations, the one financial, the other the desire for spectacular realism.

The earliest of the British covered theatres owed their form indirectly to the theatres of Renaissance Italy, which in turn were based upon an imperfect understanding of the classic theatre. Palladio's Teatro Olimpico at Vicenza, 1580,¹⁰ its formal stage backed by the permanent architecture of the *scenae frons* and directly related to the auditorium with its elliptical seating—so strangely reminiscent of Thorikos—retains the simple conventions of the classic theatre; but Scamozzi's permanent perspective scenery, set behind the openings in the *scenae frons*, hints broadly of the pitfalls ahead when actor and scenic machinery strive for dominance, and the bitter rivalry of Inigo Jones and Ben Jonson was born (fig. 19).

The English Restoration theatre (fig. 20)

¹⁰ R.I.B.A. JOURNAL, February 1956.

was a variation upon this Italian theme.¹¹ In the Palladian theatre the elliptical auditorium, rising in a single tier of stepped seats, faced a long rectangular stage, but in the English theatre the stage, with less length but more depth, faced an auditorium which, unlike the Greek cavea, was built in several galleries (Pl. 9); thereby placing the greater part of the audience in the ideal position facing the stage, but, unlike the theatres of Argos and Pergamon, placing them within a reasonable distance of the actor. The sides of the room containing both audience and stage were formed with boxes, a relic of the Shakespearian theatre which nevertheless served the purpose of linking stage and audience into one unit. Behind the stage Scamozzi's scenery had grown to new proportions providing a perspective background capable of change.

That theatre owners should wish to make more money by providing for more audience was inevitable and existing theatres were adapted to this purpose by cutting back the stage area until eventually

the actor was pushed back amid the scenery and his original position occupied by additional audience (fig. 20b).

By the beginning of the 19th century spectacular realism was the order of the day, and in 1812 the stage picture at Drury Lane was framed in with a huge gilt picture-frame beyond which the actors were forbidden to step. It is interesting to note that two 18th-century theatre designers, Benjamin Wyatt and Peter Nicholson, considered the requirements of scenic illusion to be more important than those of the actor when determining the shape of the auditorium.¹²

The sensible auditorium arrangement adopted by Wren in his design for the Theatre Royal, Drury Lane, was unfortunately superseded in many cases by an auditorium of horse-shoe plan based on the continental opera house design. This arrangement was perfectly suitable while

¹¹ 'Wren's Drury Lane', R. Leacroft, ARCHITECTURAL REVIEW, July 1951.

¹² 'P. Nicholson and the Scenographic Art', W. Armstrong, Theatre Notebook, vol. 8.

the stage remained within the auditorium but as it retreated behind the proscenium wall the audience was left facing an empty space.

The proscenium wall in a modern theatre is, as has been described above, the wall which separates the stage from the auditorium and at first glance bears little relation to the proscenion of the Greek theatre. In the Greek theatre the proscenion was that structure which supported the logeion and was placed, as its name implies, before the skene or stage building. The front wall of this 'skene' building, backing the logeion or stage, became the frons scenae of Roman times, and this in turn opened at Vicenza to admit a view of scenery set within what was originally the actors' booth or changing room. The Restoration stage in England retained the term proscenium, applying it to the acting area, and eventually, as the acting area retreated towards the scenic area, so the term proscenium travelled with it until it eventually settled on what was originally the scenae frons and this became known as the proscenium wall; the opening in it eventually being designated as the picture-frame opening.

Varying influences have formed the theatre buildings and the buildings have in their turn conditioned the contents of the plays. We therefore find the average contemporary theatre to be a building suitable for the presentation of a certain kind of realistic production but one which nevertheless tends to limit and indeed distort the presentation of most forms of non-realistic play.

It is this tendency to distortion which has led to a general sense of dissatisfaction with the picture-frame stage and to a call for a return to an open-stage theatre. It was the realisation of the distortion which this kind of theatre imposed upon revivals of past ages, and in particular the plays of Shakespeare, which led such reformers as

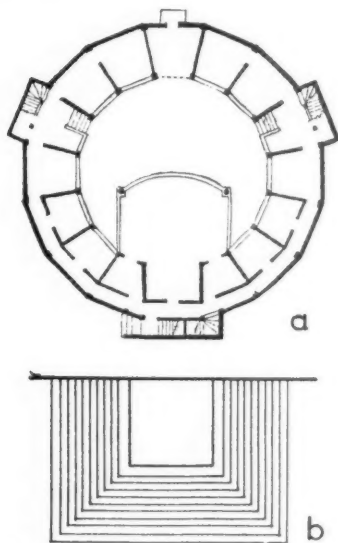
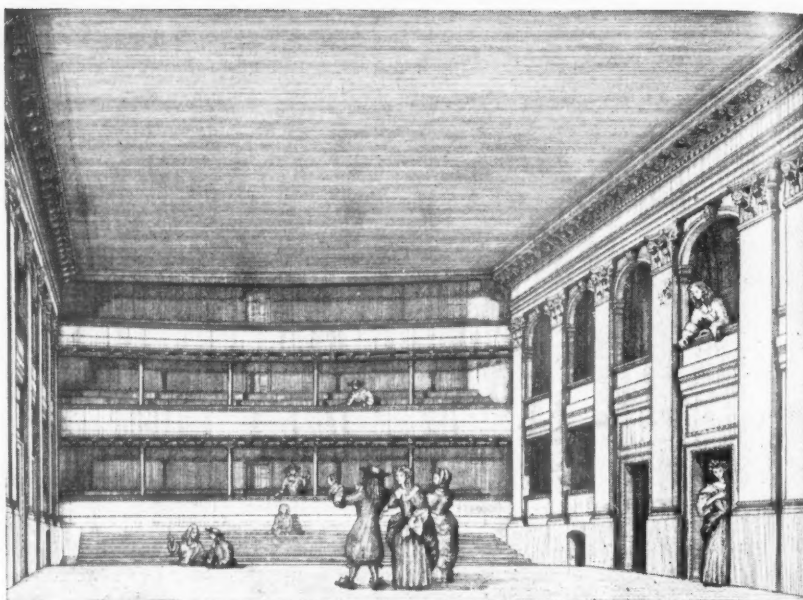


Fig. 21



Pl. 9: The Theatre Royal, Drury Lane, as designed by Sir Christopher Wren in 1624. (A reconstruction by the author)

William Poel to attempt a return to the form of theatre used in the Elizabethan era.¹³ This return naturally demanded an extreme break with the picture-frame stage, one which lifted the actor from his box and placed him once again amid his audience; it demanded a break from naturalistic scenery to in some cases no scenery at all, in others the conventional re-use as a scenic background of the architectural surround to the stage.

To-day the same need exists, both for the revival of Shakespearian plays and for the presentation of non-realistic poetical drama, and suggestions for a new stage are based upon the arrangement which has generally been accepted as representing a Shakespearian stage (fig. 21a): placing the actor upon a raised stage set amid the audience who surround it upon at least three sides (fig. 21b).

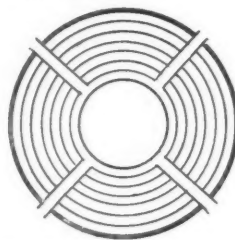


Fig. 22

The desire to break away from the restrictions of the picture-frame stage and place the actor once again in closer touch with his audience leads to excesses in reaction and arrives ultimately at the arena stage (fig. 22): admirable enough for the

presentation of specially written plays but limiting in the use of the normal conventional script.

Both forms of theatre are however to some extent based on fallacies. The Shakespearian three-sided stage is assumed to be a stage appropriate to his plays and therefore ipso facto good in itself, whereas the plays were appropriate to the stage and if Walter Hodges' recent suggestions are to be accepted¹⁴—and his arguments are most logical—then the Shakespearian stage is, like so many of our stages, a thing of evolution and not of design. Conditioned as much by the use of the early buildings for bear-baiting as by their theatrical uses, it was not in fact designed to be used primarily as a theatre but as a place for animal spectacles adapted to the less popular theatrical uses.

The arena stage tends also to fall into the same error of too great a simplification of theatrical history, a too-ready assumption that the Greek theatres developed directly from a circular threshing-floor, and that therefore a circular threshing-floor must be the ideal place for theatrical presentation. Again the same error of outside conditions and a mixing of uses comes into play, and whilst such a floor may well be suitable for the religious dances of a small community it does not necessarily imply that the circular form will also prove eminently suitable for the uses required by the presentation of modern drama.

It would appear as though in an attempt to rid ourselves of the limitations imposed by the picture-frame stage we are throwing overboard all features connected with this form regardless of their qualities for good or bad. The fallacy of the Shakespearian stage lies in the suggestion that an actor

¹³ William Poel and the Elizabethan Revival, R. Speaight, Heinemann.

¹⁴ The Globe Restored, W. Hodges, Benn, 1953.

should be set amid his audience with an auditorium extending around him, placing him in the position of the bear that is being baited, and further suggesting that a platform stage with an audience on three sides is preferable to an audience set facing a stage in the manner of the contemporary theatre; the general implication being that the fan-shaped auditorium was solely conditioned by the need to view the scenery. Remove the scenery and necessarily the fan-shaped auditorium must be swept away as well is the illogical solution.

We have seen however in our study of the Greek theatre that this arrangement of seating, set before the actor, came into being before the demands of naturalistic scenery became involved. Indeed, this positioning of the actor and his audience was conditioned by the need to allow the audience a clear view of the important entrances which were situated in the skene and paraskenia walls; the whole arrangement constituting what we have dared to call the 'ideal' arrangement.

One must beware however of confusing this ideal arrangement with the form of auditorium more usually known under the title of 'multi-purpose hall', where rows of seats are set in monotonous straight lines on a flat floor facing a hole in a wall through which may be glimpsed the stage beyond. Even the 'rude provincials' of Thorikos knew better than this and arranged their seats on a slope so that all might clearly see the performance.

What then are the conclusions which may be drawn from this brief summary?

They are:

1. That where the presentation of naturalistic plays requires the use of scenery, then a stage with a masking element between the scenery and the audience is an essential feature, required as well under present legislation as a necessary precaution against fire. It is however suggested that this masking element be kept as unobtrusive as possible, so that every effort may be made to unify the acting area and the auditorium and so off-set the lack of 'intimacy' inherent in the 'picture-frame stages'. The need is not to remove what is generally known to-day as the proscenium wall but to remove the picture-frame effect of the hole in this wall by neutralising its effect as far as is possible¹⁵. The auditorium must then be planned to allow only good sight-lines from every seat to the acting area, without placing any member of the audience too far distant from the stage.

2. It would seem that for the presentation of non-realistic drama not requiring the use of scenery, an open stage, set within the limits of the auditorium and not enclosed behind a proscenium wall, is the answer. This open stage however may be arranged, as we have already noted, in two ways:—(a) an open platform set amid the audience, (b) an open platform set before the audience.

(a) The open stage set amid the audience consists generally of a square, or near-square, platform surrounded on three sides by approximately equal numbers of audience (fig. 23). It is a form well suited to erection in an existing hall and for productions involving pageantry and/or sculptural form. It is however limiting for the following reasons:

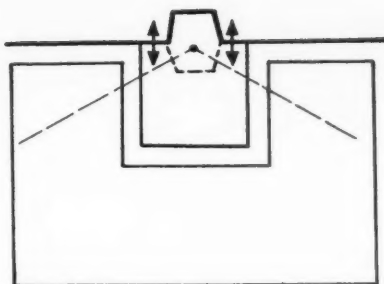


Fig. 23

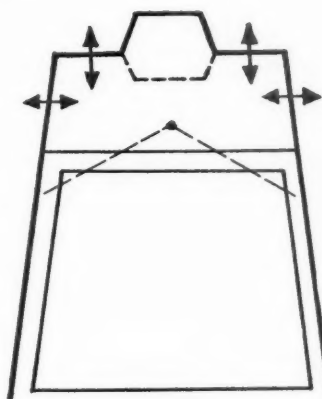


Fig. 24

(i) Direct address to the whole body of the audience is only possible from a position at the rear of the stage; a position which places a large area of dead stage between the actor and those of the audience seated directly before him.

(ii) Masked entry onto the stage is limited to entrances placed in the rear wall of the stage, all other entries onto or exits from the stage must be made through or under the audience.

(iii) It is difficult, if not impossible, to provide for a recessed inner room which can be viewed by all the audience: the only possible answer to this problem being a projecting inner room (fig. 14b), but with an audience on three sides it is inevitable that this projecting unit, when fully curtained, will mask some part of the stage for some members of the audience.

Both inner room and side-masked entry are features which, even in the most non-realistic of dramas, are invaluable assets to the author and producer, and their omission would form an unnecessary limitation on the scope of present-day drama.

(b) A platform stage set before an audience (fig. 24) may be designed to permit the use of these valuable features outlined above.

Points of entry may be made at both rear and sides, and provision may be made centre-back for a recessed room. A projecting inner room may also be included if so desired as here the sight-line limitations do not apply when the structure follows the angular arrangement.

The stage would of necessity be rectangular, greater in length than depth, so that the majority of the audience may be placed facing its longer side, but the depth must be restricted so that there is not an excess of 'dead' stage

between the actor and his audience when a scene is played in or around the inner room. If the space containing both stage and audience is then made slightly fan-shaped, the audience will be placed, on one or more levels, in the ideal position for viewing the acting area and its various accessories. They will also be able to receive the full benefit of direct address when this is resorted to, and the actor may deliver such a speech from a position nearer to and therefore more intimate with his audience than was the case in type 2(a).

One further but most important point in which open-stage type 2(b) has advantages over type 2(a) is in the use of lighting units to achieve modern standards of illumination. With an audience positioned around the stage on three sides it is most difficult to use directional lighting—a particularly necessary feature when footlights are dispensed with—without interfering with the enjoyment of some section of the audience. These directional units may however be easily positioned for use with the open-stage type 2(b).

In general terms this arrangement may be seen to equate to the plan form of Wren's Drury Lane (fig. 20a); if in this plan we were to replace the missing scaenae frons at X-X and thereby cut off the scenic area, we find a stage which approaches to our suggested type 2(b), although perhaps overdeep if we were to consider placing an inner stage within the scaenae frons. Even the boxes in the side walls might perhaps remain, linking the audience more closely to the stage, and providing harmless positions for those members of the audience who rate being seen before seeing. It must of course be fully understood that the use of scenery on such an open stage is limited, under present legislation, by the approval of the local authority, and it must therefore be underlined that such a stage is for non-realistic presentations only.

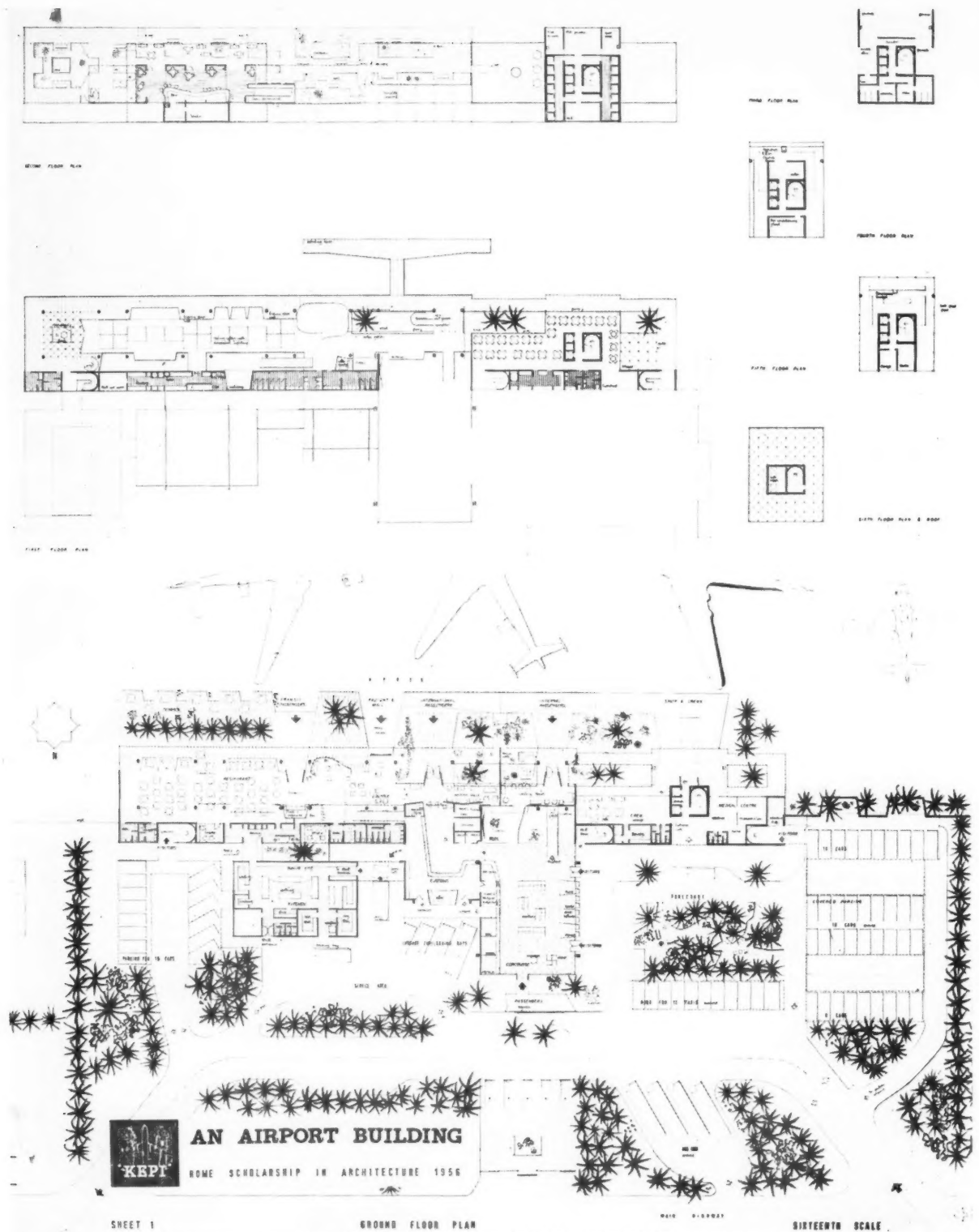
Not only does this open-stage type 2(b) relate closely to the plan arrangement of Wren's Theatre Royal, Drury Lane, but so too does the suggestion outlined above under heading 1, relating to the presentation of realistic productions requiring the use of scenery. Here again in Wren's design we find the required 'invisible' proscenium opening giving access to the scenic area. Replace the 'open-stage' area in this example by seating and refrain from introducing a 'picture-frame' to mark the position of the opening and we have theatre type 1. Fill in the opening and replace the 'open-stage', we find theatre type 2(b); both forms of theatrical production being provided for in one and the same theatre building.

It is fully realised that the conclusions outlined above produce no startling results leading to 'futuristic' forms, and it is quite right that this should be the case. Unless we are to throw overboard the whole drama of the past and start completely fresh with new dramatic forms, no revolutionary new theatre form is necessary. What is required however is a careful reassessment of each feature of our contemporary theatre before it is thrown overboard as part of the currently fashionable hue and cry after the 'abominations' of the picture-frame stage.

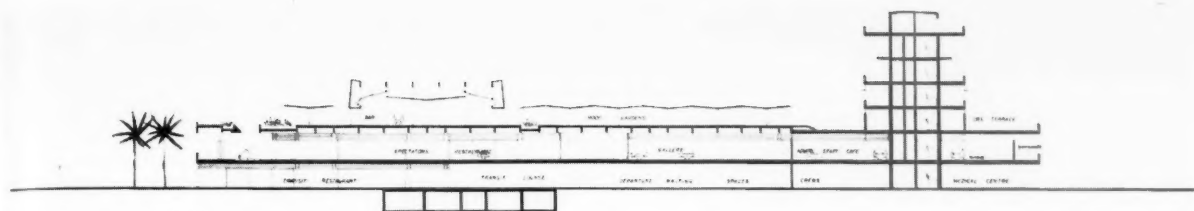
Acknowledgements

In addition to the thanks and acknowledgements which appear in the full Report, the author would like to take this opportunity of thanking the authorities of Princeton University for their permission to quote from Margaret Bieber's *The History of the Greek and Roman Theatre*. He would also like to acknowledge his debt to Mr. Oswald Dilke, both for his kind personal criticism and comment on the original Report, and for the many references which have been made to his published works as follows: Dilke, O. A. W. 'The Greek Theatre Cavea', *ANNUAL of the British School at Athens*, vol. xliii, 1948, and 'Details and Chronology of Greek Theatre Caveas', *ibid.*, xlv 1950.

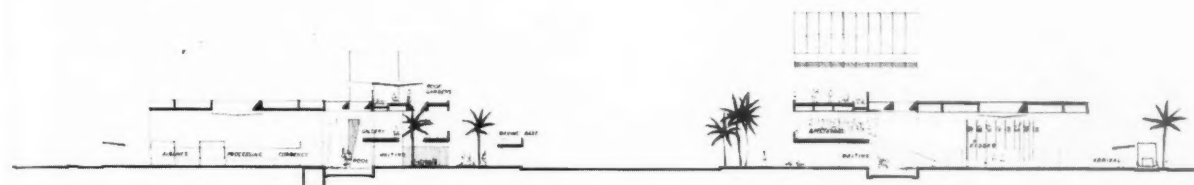
¹⁵ *Civic Theatre Design*. R. Leacroft, Dobson, 1949, p. 64 f.



Rome Scholarship in Architecture, 1956: The winning design. Four of the six sheets submitted by Mr. Kevin Patrick Campbell, B.Arch.(L'pool) [A]



SECTION 4-4



SECTION 3-3



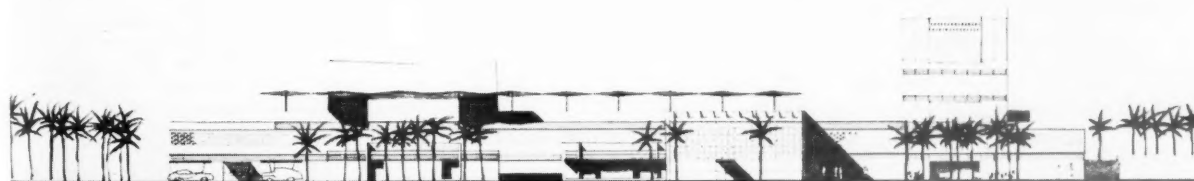
SECTION 2-2



ELEVATION TO AIRFIELD



WEST ELEVATION



AIRFIELD ELEVATION NORTH

Subject: An Airport Building for an airfield serving a large African town with considerable classical remains much visited by tourists

Points arising from The British Architects Conference 1955 at Harrogate

AT THIS CONFERENCE papers were read by Sir Thomas Bennett, K.B.E. [F], and Mr. David Woodbine-Parish on the subject of 'The Organisation of the Building Industry and the Architect's Responsibility'.

Sir Thomas Bennett in his paper traced the more recent development of the building industry from what some 50 years ago was little more than a craft industry to the present day. Following on his review of this revolution of method he pinpointed some of the problems facing the industry which needed to be considered and some solution found.

Mr. Woodbine-Parish pleaded for the professions concerned in the building industry not to lose sight of the fact that they formed an integral part of the industry. The theme of his paper turned largely on the point of management in the broadest sense: without good management, good and economic building was an impossibility. In his inaugural address to the Conference the then President, Mr. C. H. Aslin, C.B.E., stated that points of substance arising from the papers and the discussions would be brought before the Joint Consultative Committee of Architects, Quantity Surveyors and Builders for further consideration, and this has in fact been done.

Fundamental points touching the very basis of the building industry such as those raised at the Conference, which have been troubling the industry since it achieved its present form, are naturally not susceptible of ready answers, but it is not too much to expect that the goodwill exhibited by the constituent bodies of the Joint Consultative Committee can be drawn upon to provide workable solutions.

The Council have considered a report of the Joint Consultative Committee on the points which arose at the Conference and have authorised the publication of this article for the information of members.

Tendering. The existing system of competitive tendering was subject to some disparaging references although at the same time it was pointed out that always to negotiate contracts could not provide the real answer. If the principle of negotiation were taken too far there would be no sound basis upon which to judge the amount at which any particular contract should be assessed, unless some really efficient price exchange system were established.

The report which gave birth to the formation of the Joint Consultative Committee was that of the Joint Committee on Tendering Procedure sitting under the Chairmanship of Sir Howard Robertson and one whole section of this Report (Section II) was given over to supporting the Simon Committee's Report on the desirability of selective tendering, and this matter has been actively pursued. In considering this subject, the Joint Consultative Committee were able to refer to a report

of one of their sub-committees which had considered the 'Chantier experimental' competition at Strasbourg. Under the terms of this competition, teams of architects, engineers, contractors and manufacturers submitted a planned scheme, the first prize for which was the contract. In this country acceptable model conditions of competition have been drawn up under the aegis of the Ministry of Housing and Local Government; but as far as it is possible to discover at present, only in Sheffield is there any likelihood of such a scheme being started. In view of the differences between French contractual procedure and that which applies in the United Kingdom, no really valid conclusions could be arrived at without such a competition being completed in this country.

The Joint Consultative Committee have also approached the London County Council with the request that they should be kept informed of the progress and results of the Picton Street Scheme, which was the subject of an article in the December 1955 JOURNAL, and it is hoped that much can be learnt from this project and its attendant results which will help to enable the relative methods of tendering to be put in proper perspective.

On the broader issue it was thought that all too often the complaints made against competitive tendering were unjustified and related possibly only to the use of indiscriminate competitive tendering, upon which basis it has been already agreed that the practice is harmful to the building industry.

Quantity Surveying. It was asked at the Conference that a simpler type of quantity surveying should be agreed upon, with particular emphasis on housing projects.

The Standard Method of Measurement Committee have for some time been looking into the problem of simplification of the standard method of measurement. So far all the suggestions which have been received are principally devoted to the clarification of the existing method rather than to its simplification. The Joint Consultative Committee were in agreement with the aim of simplification and are trying to obtain from the regional committee some suggestions directed to this need and at the same time urging that simplification should be expedited, if it is possible.

The National Federation of Building Trades Employers have been asked to reconsider the existing national quantities rule with a view to increasing the value below which quantities need not be prepared for inviting contractors to tender, and also laying down a superficial area below which the rule would not apply.

It was also queried at the Conference whether it would not be both possible and desirable to reduce the number of documents which have to be taken into account when tendering, by combining the speci-

fication and bills of quantities. Consideration of this question by the Practice Committee led them to the belief that the suggestion could be implemented if the bill items included the general clauses and trade requirements. The architect would also be responsible for the provision of schedules showing the location of the work. The Joint Consultative Committee felt that the difficulty was that in the event of conflict there would be confusion because the specification was not a document prepared for the purpose of pricing. On the other hand, if the suggestion were really directed to annotated drawings it was felt that the object could be achieved by converting the specification into a series of schedules, each of which would be cross-referenced. The whole matter requires further consideration, which the Joint Consultative Committee are undertaking, and in view of the possible effect on the Standard Form of Contract a report of their conclusions will be made to the Joint Contracts Tribunal.

There was yet another suggestion concerning the bills of quantities, which was that they should contain some provision for a list of reciprocal services to be provided by the contractor and the sub-contractors respectively. This suggestion would also apply to the forms of tender for sub-contractors. When considering this the Joint Consultative Committee were reminded that if the nature of any particular specialist work required abnormal services on either side, these must be particularly described. Reference was also made to an article in the JOURNAL of the R.I.C.S., published in December 1954, in which it was pointed out that 'omnibus' items in the preliminaries of bills of quantities did not meet the intention of the Standard Method of Measurement. The article continued by pointing out that the detailing of the services required should be sufficient to enable the principal contractor to estimate the extent of the work involved.

Planning Approvals. Much has been said on the subject of planning approvals, but the particular criticism made at the Conference was directed at unnecessary delays resulting in the building owner becoming impatient and trying to force the pace once the permission has been obtained.

It has been stated that delays occur when some additional Ministry is concerned. The statutory period for approval in these cases is three months as opposed to two in the normal case, but even this extended time is often over-run. The Town and Country Planning and Housing Committee are at present working on the basis that where more than one body is concerned in giving approvals to any one application this should be sought concurrently from those bodies. It was thought that if this could be done a source of inconvenience to the building industry and to prospective builder owners would be removed and

might well result in more time being available for preplanning.

Sub-Contractors. Dissatisfaction was expressed with the method by which the contractor is left to find a sub-contractor when the architect has specified the work to be done. It was also pointed out that in many projects it would not be possible to produce the drawing for a well-thought-out building unless the principal sub-contractors had already been appointed.

In discussing these observations the Joint Consultative Committee concluded that the contractor ought to be given the opportunity of quoting in respect of such work provided that he had a suitable department for the execution of it.

Closely coupled with these points was the criticism of the contractor who tends to adopt the attitude that the architect, having stipulated which nominated sub-contractor was to do the work, should be responsible for organising such work. The contractor then fails to ensure that the sub-contractor's work is properly related to a time schedule or even to find out when the sub-contractor's work starts and finishes. The Joint Consultative Committee appreciated the need for better control of sub-contractors and would expect this to form at least part of the basis of future management studies. When considered by the Practice Committee this was connected with another matter, namely, that of a need for standard conditions of tender for sub-contractors. It was felt that the production of such a form would lead to better integration, particularly where it was linked with the standard form of sub-contract, thus obviating the irritation of closely printed conditions frequently attached by the sub-contractor who is tendering, which few people read, or fully appreciate once they have read them.

Whether or not standard conditions of tender for sub-contracted work should be devised and put into use were the questions discussed by the Federation of Associations of Specialists and Sub-Contractors with the Joint Consultative Committee. The latter Committee gave further thought to the matter following on this joint discussion and some difficulties became apparent which remain to be resolved before any drafting can actually be done.

One subject which is of concern to the R.I.B.A. alone and therefore has not been referred for joint consultation is the position which arises when the architect uses the design of a specialist sub-contractor instead of an independent consultant. In such a case there is clearly included in the tender an amount payable in respect of the design services rendered upon which the architect will be remunerated. On the other hand, if an independent consultant is employed then the R.I.B.A. scale provides for a reduction of the architect's fees with a maximum reduction of one-sixth of his fee on the cost of the whole scheme. One matter of importance in this connection is that stressed by the Practice Committee, which is that where the design of a sub-contractor is accepted there is no reduction

of the architect's responsibility to his client. The Practice Committee have yet to make their report on this question.

Contractual Matters. Some uneasiness was felt at the Conference on the subject of claims being made by contractors. In Sir Thomas Bennett's phrasing 'it should be possible each month when financial statements are issued for the builder to be compelled to give notice to the architect of work which he considers has involved additional cost, with some estimate of the amount, and this should be returned regularly to the clients so that they know how their costs are running. If the builder has not declared his additional cost in this way he should be precluded from claiming it at a later date.'

It is essential that a distinction should be drawn between 'variations' which involve extra work which will have to be valued under Clause 9 of the R.I.B.A. Contract and 'claims' which are made under Clause 1 of the Contract, where provision is made for loss to the contractor which is not contemplated by the contract. As and when extras and omissions arise the employer should be kept informed.

On the 'claims' issue, it was the view of the Joint Consultative Committee that contractors should be precluded from reserving claims until the completion of the works. In fairness however the burden placed upon the contractor should not be more than merely making him give notice of a claim at the time it occurs. This will then enable the architect to handle the matter more conveniently than if it were delayed until the end of the contract, when much of the reason for the claim may virtually be untraceable. It would not usually be practicable for the contractor to give a figure for his claim when it actually arose.

In conjunction with many other points concerning the same matter the Joint Contracts Tribunal will consider this in the general revision of the Standard Form of Contract.

On another contractual issue it was suggested that some system of penalising a client for frivolous changes of mind should be incorporated in the Contract as, for example, charging double daywork charges in respect of the alteration. The suggestion as put would of course lead to innumerable disputes as to what was and what was not 'frivolous'. The probability is that anything aimed at fairly dissuading a client from making unnecessary variations would create the same difficulty. On the other hand it would be unwarrantable arbitrarily to penalise all variations. Very largely the answer may be found in educating the public on the advantages of preplanning. To this end the Joint Consultative Committee propose to issue a joint publication on the subject following the lines of the two documents already prepared, the one by the R.I.B.A. and the N.F.B.T.E. and the other by the R.I.C.S.

Research. The particular criticism made at the Conference was that the building

industry, as opposed to other industries, is casual about its research and has not subsidised it.

The statement itself is not accurate and was considered by the Joint Consultative Committee to be far too sweeping. It is to be appreciated that the responsibility of a contractor is to assemble materials and components to complete a building in the way in which he is directed to do so by the architect, in which he differs essentially from producers who are able, to some extent, to dictate precisely what they will and what they will not produce.

In 1950 the Ministry of Works published the Working Party Report on Building, and in one section (paragraph 165) the particular question 'Should the industry take over its own research?' was considered. The conclusion arrived at by the Working Party was that the responsibility for building research should remain, as at present, largely with government agencies. With this conclusion the Joint Consultative Committee agree, bearing in mind that a contribution is made by the N.F.B.T.E. to the Building Research Station and also that there are some large contractors who undertake research and have their own research departments.

It was pointed out at the Conference that the information necessary for the preparation of cost data by the Building Research Station or by any other body could be supplied by architects with the collaboration of quantity surveyors, but not simply through examination of bills of quantities. It was therefore suggested that some system for the collation of such information might be set up.

The Joint Consultative Committee underlined that there were already many architects and quantity surveyors who were affording facilities for this kind of information. Quite apart from this however, the R.I.C.S. have been considering the problem and also that of providing and maintaining a service in the nature of a cost information service. It is not possible at the present moment to say more on this important matter because the R.I.C.S. are still giving further thought to the subject and the R.I.B.A. are being consulted.

Education. Considerable stress was laid on the suggestion that architects, quantity surveyors and builders should ensure that the industry has a comprehensive system of day and evening education with a wide choice of method and a substantial degree of mutual training.

At the end of January 1956 the Joint Consultative Committee convened a conference on the subject of Joint Training, the outcome of which has been a Joint Advisory Committee on Training in the Building Industry, whose terms of reference are as follows: 'To explore current systems of training and to make recommendations for future action, including the setting up of a committee as envisaged in the resolution passed at the Building Training Conference held on 31 January 1956.' The point has been referred to this Committee, which has only recently been inaugurated.

An allegation considered by the Joint Consultative Committee was that the site staff's standard of education falls far below what is essential and far below the standard of men similarly employed in stable factory production. The Committee agreed that the standard of training for site staff could be improved, but they could not agree that there was any evidence to suggest it was 'far below' that of static industry. The training of general foremen has now reached a stage where a scheme for courses and related examinations has been prepared. It was felt that the matter was not one which could be dismissed at this and therefore it has also been referred to the Joint Advisory Committee mentioned above.

Management. Mr. Woodbine Parish thought that there ought to be set up a study group to consider the whole question of management practices with a view to establishing a code of management practice applicable to the broad needs of the industry. Directly resulting from this suggestion, and as far as architects are concerned, a Conference on Architectural Office Management was arranged by the York Institute of Architectural Study. Following on this the York Institute has decided to hold a course on Architectural Project Management at York in 1957, the subjects in which will range from the brief to the conclusion of the project.

The Joint Consultative Committee also noted the Building Advisory Service conducted by the N.F.B.T.E. This service undertakes investigation for any firm engaged in building, joinery manufacture, engineering or work for the building industry in connection with the following subjects: work study, incentive bonus schemes, materials handling, mechanisation, programming, site organisation, costing, office organisation, personnel administration.

Operatives. Two substantial points were made on this subject at the Conference.

The first was that the principal method of recruiting the craftsmen of the industry was by apprenticeship, but some of the members of the industry expected the others to train their craftsmen for them. Clearly the need is to persuade employing firms to take on more apprentices. This was the main theme of the apprenticeship recruitment campaign which has been actively operated in the building industry since the war. It is true that some large firms carrying out big projects have shown reluctance to take on apprentices for those jobs, chiefly because they anticipate completion of the job long before that of the apprenticeship. It was to mitigate this difficulty that the apprenticeship scheme allowed apprentice indentures to be transferred, in suitable cases, to another employer. That provision has been operated on many occasions and the interested parties in the industry are well aware of it.

The second point was that at present operatives were recruited either as skilled craftsmen or unskilled labourers. It would appear that there was an intermediate stage and it might be that the industry must train men who did not pretend to be fully fledged craftsmen. This might perhaps be better done in training establishments rather than by apprenticeship. The Joint Consultative Committee agreed that such a proposal would involve a fundamental change in the wage structure of the building industry by introducing a grade of workers intermediate between craftsmen and labourers. A change of this magnitude could only be effected by agreement between the National Executives of the N.F.B.T.E. and the N.F.B.T.O., duly ratified by the constituent bodies. Although 'wage structure' committees on each side have explored the possibilities, neither has published any definite conclusions; but the matter already forms part of the general review of the present industrial position which is being carried out, informally, at joint meetings of representatives of the

National Executives. It is probably wiser that the subject should be approached in that way, as otherwise serious labour disputes could be precipitated. It was noted by the Committee that Mr. D. N. Chester, Warden of Nuffield College, Oxford, has been examining the wage structure of the building industry.

Publicity. It was suggested that the building industry should organise travelling symposia at central points throughout the country dealing with the various aspects of the building industry. When consideration was given to this suggestion it was noted that the Ministry of Works already held exhibitions of this kind, as does the N.F.B.T.E., either jointly with the Ministry of Works or alone, and that there is also the Building Exhibition. The item was already sufficiently covered, it was felt, by the publicity given to the industry by these exhibitions.

Inspection. Criticism was directed at builders on the ground that some will do good workmanship only if policed by the architect. It was said that the building industry should introduce its own system of inspection or alternatively that there should be a national system of building inspection.

The Joint Consultative Committee did not consider the suggestion to be practicable, in that any form of voluntary system would depend upon those contractors who were prepared to enter into the scheme. It was thought that those contractors who would be prepared so to do were already doing what was required of them. The system of registration conducted by the National House Builders Registration Council provides an answer in the case of house building and there is of course a limited system of inspection already in existence nationally, namely the bye-laws which are enforced through the local authorities.

Practice Notes

Edited by Charles Woodward [A]

IN PARLIAMENT. Buildings (Double Windows). Asked what advice he has given to local authorities regarding the advantages of double windows in public buildings or housing estates for which they are responsible, both in the interests of the comfort of the people working or living in such buildings and because of the substantial savings in fuel which would be possible, the Minister of Housing and Local Government replied: Advice to local authorities has been confined to thermal insulation of roof space, floors and walls, since this gives greater heat savings for the expenditure than double glazing and involves no additional maintenance cost. (24 July 1956.)

Private Building. Asked to what extent the credit squeeze has now resulted in a fall in the volume of private building, the Minister of Works replied: It is too early as yet for any reduction to have shown itself in the volume of private building work actually being carried out. Nevertheless there are indications that but for the credit squeeze appreciably more new private building would be coming forward. (24 July 1956.)

MINISTRY OF HOUSING AND LOCAL GOVERNMENT. Housing Subsidies Act 1956. Circular 33/56 dated 17 July addressed to local authorities deals exhaustively with the provisions of this Act which received the Royal Assent on 28 March last. The Circular is obtainable at H.M.S.O., price 1s. 3d. net.

The new rates for Exchequer housing subsidies will apply to new dwellings

provided by local authorities with the approval of the Minister where the tender or estimate was accepted by a formal resolution of the Council passed on or after 3 November 1955. Where however a formal resolution is passed on or after that date accepting a tender or estimate which had previously been submitted to the Minister for approval, the resolution is deemed to have been passed before that day, and any dwellings provided under the tender or estimate will therefore qualify for the rates of subsidy previously payable.

The Minister has power by Order to abolish or reduce all or any of the Exchequer subsidies payable under the Act or to reduce the period for which the subsidies are payable. The Order will apply to dwellings of a description specified in the Order, the tender or estimate for which is accepted by a formal resolution of the

Council on or after a date specified in the Order.

The new rates for Exchequer subsidies for dwellings are set out in the Circular in a table. Different rates are payable according to the purpose for which the dwelling is provided and there are higher rates for flats provided in blocks of four storeys or more. The definition of a flat includes a maisonette. The subsidies are payable annually for 60 years.

The Minister may pay additional subsidies at his discretion for dwellings provided for members of the agricultural population, for dwellings in areas of mining subsidence and for dwellings where special materials have been used to preserve the character of the surroundings. The additional annual Exchequer subsidy for agricultural cottages is £9 above the subsidy for general needs, i.e. a total of £19. In addition an annual contribution of £2 10s. will be payable by the County Council. The additional subsidy for dwellings in areas of mining subsidence continues at a rate not exceeding £2. The additional subsidy not exceeding £5 payable where special materials have been used to preserve the character of the surroundings may be applied to all these subsidies.

The subsidies payable for dwellings to replace slums, camps and other unsatisfactory temporary accommodation are set out in the Circular together with those for dwellings provided under Town Development schemes.

The Act contains amendments of the definition of 'flat' and a 'block of flats' which were defined in previous Acts. A 'flat' is now defined as a separate and self-contained set of premises, *whether or not on the same floor*, constructed for the purpose of a dwelling and forming part of a building from some other part of which it is divided horizontally. The words in italics are intended to make it clear that for the purposes of the Act a maisonette is a flat.

A 'block of flats' means a building containing flats which consists of a given number of storeys, exclusive of any storey constructed for use for purposes other than a dwelling. If a block of flats consists of two maisonettes one above the other on four floors the Minister will regard the block as one of four storeys.

Flats in blocks of three storeys or less will qualify at the rates applicable to houses. Flats in blocks of four storeys or more will qualify for a special subsidy according to the number of storeys in the block. A separate subsidy is payable for flats erected on an expensive site, whatever the number of storeys.

A subsidy may be paid for dwellings by a local authority or housing association for persons coming from outside the area of the authority to meet the urgent needs of industry.

The Planning of Mortuaries and Post-mortem Accommodation. The Ministry have issued a pamphlet on the planning of mortuaries which is obtainable at H.M.S.O., price 6d. Construction and materials are dealt with and suggested plans both with

and without post-mortem accommodation are included.

PRACTICE AND PROCEDURE FOR THE QUANTITY SURVEYOR. This well-known book by Arthur J. Willis, F.R.I.C.S., now needs revision owing to changes and developments in practice, and a Revised Supplement has been published, price 6d. net. The publishers are Messrs. Crosby Lockwood & Son Ltd., 26 Old Brompton Road, London, S.W.7. The Supplement brings the volume up to date.

THE CLEAN AIR ACT 1956. This Act received the Royal Assent on 5 July 1956 and will begin on 'the appointed day', which will be named by order and may be a different day for different purposes and areas. The object of the Act is to provide for abating the pollution of the air by controlling the emission of smoke, dust and grit from a building.

The authorities enforcing the Act are the County Borough and County District Councils in the provinces and the City of London Corporation and the Metropolitan Borough Councils in London.

THE NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS. In an Interim Report presented at the Federation's half-yearly general meeting held in London on 10 July, complaints made by members of the Federation of the practice of water undertakings in connection with supplies for building purposes included the following:—

(a) That water undertakers in many instances arbitrarily refuse to grant a metered supply of water in cases where it would be reasonable and practicable to do so.

(b) That the basis of charging (otherwise than by meter) adopted by water undertakers results in a sum being levied greatly in excess of the cost of the water actually used calculated at the appropriate industrial rate.

(c) That where the water undertaker's charge is calculated upon the contract value of the building works to be carried out, the cost, compared with the cost of water to other industrial users, is in some instances inflated by the inclusion in the contract value of items, e.g. steel erection or joinery, for which no water is required.

(d) That where, as on housing estates, water is charged per house, the charge is calculated by the water undertaker upon an estimated consumption of water greatly in excess of the quantity normally used for that class of work.

The Federation's view is that, except where water is supplied for building purposes by meter at the appropriate industrial rate, water undertakers generally are (i) levying on the building industry a charge for water disproportionate to the charge made to other industrial users and thereby increasing the cost of building; and (ii) adopting methods of charging which provide no inducement to the users to check the wastage of water on building sites.

LAW CASES

L.C.C. v. Wilkins. Contractor's huts on site held to be rateable. In the JOURNAL for May 1955 at p. 303 it was reported that the Court of Appeal decided that huts put up on a site by a contractor to enable him to carry out building operations are rateable.

The L.C.C. were given leave to appeal to the House of Lords and the appeal was dismissed by their Lordships on 11 July. The case is reported in THE TIMES for 12 July 1956, THE ESTATES GAZETTE for 21 July 1956 and THE BUILDER for 20 July 1956. (Note. Condition 3 of the R.I.B.A. Form of Contract provides that rates and taxes if not expressly included in the Contract Sum or stated by way of a provisional sum shall be added to the Contract Sum.

This was an amendment made in consequence of a similar decision given in the case of John Laing & Son Ltd. v. Assessment Committee for the Kingswood area, which was referred to in the JOURNAL for January 1949, at p. 134.)

City of London Real Property Co. Ltd. v. War Damage Commission. In this case the Property Company appealed against a determination of the Commission that the new building did not constitute making good war damage by works which included alterations and additions within the meaning of the War Damage Act 1943 and that cost of works payments could not be made.

The Property Company had previously been informed by the Commission that the damage did not involve total loss and that a cost of works payment was appropriate. The Property Company had then proceeded to erect new buildings but the Commission altered its determination to that quoted above.

The two new buildings being erected are on a site which prior to the war damage consisted of a number of small sites which have been amalgamated into one site.

The Commission had applied the test set out in its Practice Notes by asking whether, looking at the works executed, the property can be fairly described as still the same property as before the war damage though altered or added to. Applying this test, the Court held that the new building was not the same property as before the war damage, but a wholly different property, and dismissed the Property Company's appeal. The case is reported in THE TIMES for 25 July 1956.

Hove Corporation v. R. Green (Brighton) Ltd. Which side of a building is the front?

This was an appeal by Hove Corporation from a decision of Justices as to the interpretation of the Corporation's building bye-laws relating to space at the front and rear of the building.

The bye-laws provided that there should be an open space throughout the whole width of the front of a building to a distance of not less than 24 ft. The building in this case was oblong in shape. The two longer sides had a good many windows in them. The narrow sides had fewer windows and it was one of these which faced the street.

There was no definition of the word 'front' in the bye-laws and the Corporation contended that the front was the side of the building with the greatest number of windows.

The Divisional Court held that the question what is the front of a building is essentially one of fact and the Justices had found in this particular case that the front of the building was the side facing the street and it could not be said that they were wrong on a matter of law.

The Corporation's appeal was accordingly dismissed. (THE ESTATES GAZETTE, 28 July 1956.)

Correspondence

ARCHITECTS' SIGN BOARDS

The Editor, R.I.B.A. Journal

SIR,—The rush to order the new standard sign boards, mentioned in last month's JOURNAL, may be gratifying to the Council as a demonstration of loyalty. It cannot be regarded as encouraging evidence of aesthetic judgment in the profession. The new board combines more faults than one would have thought it reasonably practicable to introduce into so small and simple an object. May one hope that a fresh committee will be set up to consider an amended design, before too many members have wasted their money on this miserable thing.

Yours faithfully,

NOEL BRANDON-JONES [4]

Editor's note: Up to the time of going to press orders for 800 boards had been received by the Lettering Centre.

BULGED WALLS

SIR,—With regard to Mr. Kent's letter in your July issue, p. 395, 'Bulged Walls', everybody will agree as to the cause of the bulging. The suggested remedy however—repointing in cement mortar—will not only fail to cure the matter but lead to more and new trouble.

The bricks are old and a cement mortar will tear at them and put up stresses which they cannot resist, i.e. they will give in and crumble and spall. We have seen this happen unfortunately to many old buildings where repointing has been done in cement mortar with disastrous effects. True enough, the cement pointing stood up well to any weather and atmosphere, but the adjoining stones or bricks began at first slowly then in constantly increasing amounts to spall and split and the result was the disintegration of the building. In many cases dampness occurred too, as the impervious joints did not take up any rainwater but drove it into the adjoining bricks or stones.

Mortar should always be as near as possible in strength to the adjoining wall units, neither too strong nor too weak,

though the latter is by far the less evil. In this instance the mortar should consist of 1 part of cement, 3 parts of lime and 12 parts of clean sharp sand. This is a relatively weak mixture but safe to use with old brick- or stonework.

However, to repoint the inside only would be doing only half the job. Though Mr. Kent does not mention it in his letter, one can assume that the outside pointing is disintegrating also and needs repointing. The same weak mortar should be used, and as now wall units and pointing are of the same low resistance to rain, rainwater will spread evenly over the whole surface and evaporate evenly without any ill effects.

Inside as well as outside, the powdery mortar should be thoroughly brushed out of the joints and the walls well wetted. Slate or broken bricks should be inserted where the joints are excessively wide and deep, set in the above-mentioned mortar mixture, and left to dry. The wall should then be wetted again and the joints filled in well, preferably with a flush joint brushed with a stiff brush or similar tool when the mortar is partly set.

(MRS.) KATH. KEPPICH,
Callow and Keppich Ltd.

Book Reviews

Architecture in the Age of Reason: Baroque and Post-baroque in England, Italy and France, by Emil Kaufmann. 9 in. xxvi + 293 pp. + (64) pp. of illus. Cambridge, Mass.: Harvard U.P.; Lond.: Oxford U.P. 1955. £4.

This kind of book, because of its convincing thoroughness, so easily upsets preconceived ideas about the subject. The author, who unfortunately died before his work could be published, brings to bear all the erudition and faculty for meticulous research usually associated with Teutonic minds.

With patient reading the work emerges as a persuasive essay based upon the theory that the 'cubist' manner of our moderns grew from the successful attempts of Vanbrugh, Hawksmoor and Kent, as the opponents of tradition, to break away from the bonds of the Renaissance as exemplified by Inigo Jones and the later Palladians. The theory is not confined to examples in this country. The study deals with a similar evolution in Italy, the architectural hero there being Giuseppe Valadier (1762-1839), and France. In the latter country particularly, the author discovers for us a remarkable argument in the work of the architects of the Revolution, 1760-1800, and in particular that of Claude-Nicolas Ledoux (1732-1806).

The author argues that by means of a detachment, consisting of the breaking up into independent masses of orderly Baroque symmetry and coherence, an architecture of 'the juxtaposition of individually treated blocks', these architects introduced the elements of functionalism by expression.

He maintains that each age adopts a different 'system' of living and working and that it is this change of system which makes the essential difference between original Gothic and revival Gothic, between Roman architecture and the Renaissance and so forth: that therefore the Renaissance and the mannerisms of Baroque were a failure, being based upon a Classic precedent, and that the social system of the Age of Reason found a far more satisfactory and rational expression in the individuality of our own Romantic school and of the later architects of the French Revolution.

To understand and appreciate this theory it is necessary to read the book and to examine closely the two hundred and twenty-two plates. The reading of it is made unnecessarily tiring because of the vast quantities of notes; nearly two thousand in all!

The argument is difficult to swallow, but ultimately not difficult to digest. Very broadly the principle can perhaps best be illustrated for the reader of this review by calling to mind the contrasting appearances of Prior Park (c. 1740) and Blenheim (c. 1715). In the former the conventional sense of order arising out of Renaissance discipline (the 'rigour' of Leonardo da Vinci) is calmly obvious; in the latter Vanbrugh's rebellious gestures separate the building into a romantic whole of highly individual and separately expressive parts: the Kaufmann *Leitmotiv*.

The author, incidentally, goes to considerable length in saying that Soane does not come within his gallery of forward-looking architects. 'Soane', he says, 'did not have the frame of mind to give architecture a fresh impulse.' His argument is ingenious and clever and by means of it he places Soane very much in the position that Lutyens now occupies in relation to our own period, but this reviewer for one cannot agree that Soane's genius was not as far-seeing as any of his English contemporaries and at least as important as that of Kaufmann's Italian and French heroes Valadier and Ledoux.

The book is well worth reading and your reviewer surfaced breathless after a most revitalising plunge, during which he experienced some difficulty in disentangling himself from the weeds, although convinced of the purity of the stream.

H. A. N. BROCKMAN [4]

English Country Houses: Early Georgian, by Christopher Hussey. 12½ in. 256 pp. incl. illus. Country Life. 1955. £6 6s.

This book is the first of a new series designed to replace the English Homes sequence by the late H. Avray Tipping which, published in the course of the 1920's, went out of print in the war. That series has always been of fundamental use to students of English architecture because it has provided by far the best illustrated descriptions available of the great—and some of the lesser—country houses of England: those buildings, in fact, which form the marrow of our architectural history from the extinction of Court art under Anne to

the virtual extinction of the private patronage of architecture under George VI.

Mr. Hussey has begun his replacement about the middle of the series with a volume under the title *Early Georgian*, dealing with houses built between 1715 and 1760; in other words, the period during which the Palladian loyalties (which comprised, besides Palladio, Vitruvian theory and the practice of Inigo Jones) dominated English architecture. He necessarily takes in however a great deal which is far from Palladian and, while excluding the English baroque masters—Vanbrugh, Hawksmoor and Archer—admits some of their humbler followers, like Francis Smith of Warwick. Nor, as Mr. Hussey demonstrates, is it at any moment in this period possible to regard English architecture as free from baroque or rococo influence. Even a purist essay from the hand of Burlington himself—the famous Chiswick villa—has an external staircase of baroque derivation and interior decorations which are partly Italian mannerist (through Inigo Jones) and partly, perhaps, Venetian baroque (through Kent). It is certainly a shock to find Mereworth, the most literal imitation in this country of Palladio's Villa Rotonda, placed in the category of 'Georgian Baroque'; but a glance at the photographs of the gallery shows that there is some justification for this. Obviously, Mereworth was designed in a spirit rather different from that which inspired Kent at Holkham, a house which Mr. Hussey does classify as 'Palladian'. One might perhaps object that if Mereworth is counted out of the 'Palladian' class because of its interiors, the interiors of Honington hardly qualify it to be counted in! But the truth is of course that one can never make air-tight classifications; all these terms are blunt tools which become of very slight use once a strict analysis of any individual building is undertaken.

It is good to have the splendid COUNTRY LIFE photographs accompanied by notes which are abreast of modern research; and it is also a relief to have a text which goes straight to the point and gives maximum information in minimum space (Avray Tipping always began his articles as far away from the subject as possible and wrote himself gradually and without conspicuous literary grace into the middle of it). Another change is in the size (quarto) of the present volume compared with its folio predecessor; while the lay-out is clean and clear, a pleasure to the eye. Reconstructed on these lines the old Tipping series re-enters the bibliography of English architecture in most welcome style.

JOHN SUMMERSON [A]

The Conversion of Old Buildings into New Homes for Occupation and Investment, by C. Bernard Brown. 9½ in. xiv + 218 pp. incl. illus. + pls., some col'd. Batsford. 1955. £2 5s.

Mr. Bernard Brown, in these variations on a familiar but perennially popular theme, has made a rather more comprehensive study than is to be found in most other works published recently on this subject. It contains plenty that should be of reference

value to architects as well as to the general public about to enter the field of conversion, whether for occupation, in whole or in part, or for investment and re-sale. He writes with the authority of long experience and covers finance and legal matters that arise, details of planning and services, constructional and other technical aspects. In doing so he has not hesitated to use as examples illustrations already well known, which however is only fitting as many of them show his practical skill in work of this kind.

The book is produced on a generous scale—almost over-lavish, it may possibly be felt, where large 'before' and 'after' plans show little more than the addition of a modest fitting or two: the photographs, some of which are in colour, are plentiful and excellent in quality.

R. E. E.

Alonso Cano, painter, sculptor, architect, by Harold E. Wethey. 10½ in. xiv + 229 pp. + (112) pls. and pp. of illus. Princeton U.P.; Lond.: Oxford U.P. 1955. £6.

Although Alonso Cano is not mentioned in Banister Fletcher's *History*, his figure in marble will be found on the base of the Albert Memorial, apologetically turning a rather stained back to passers-by as he takes his place among the versatile artist giants of the Renaissance. He was born in 1601 at Granada and died there in 1667; in between he worked for considerable periods in Seville and in Madrid, primarily as painter, draughtsman and sculptor, but also as architect and designer for craftsmen in precious metals. Professor Wethey has written an admirable biography and critical study of his works, well indexed and fully documented, with illustrations of all the more important examples. Much of this has a quality which, as the author says, will inevitably re-win the high esteem it once enjoyed.

R. E. E.

Geometry in Egyptian Art, by Else Christie Kielland. 8½ in. x 214 pp. incl. pls. and other illus. Tiranti. 1955. £1 10s.

The author of this book, a Norwegian painter, is convinced after many years of research that the Egyptians used a system of proportioning in their designs based on the Golden Section. Although nothing specific has been interpreted by the philologists from hieroglyphics, she believes her theories will eventually be borne out in fact by various signs which await satisfactory translation: The Pythagoreans owed much of their knowledge to the Egyptians and for them the Golden Section was a keystone.

Illustrations of many examples of Egyptian art are analysed in the light of the system's application. It is shown to apply both to two-dimensional bas-reliefs and three-dimensional sculpture and furniture; an artist's conception of a walking figure and its transmission from plane surface to cubic form is particularly interesting.

The author progresses from single figures and objects to more complicated compositions. In the end the rigid formulae of three millenniums are disintegrated by the influence of Mediterranean neighbours,

who began to use the visual image as a yardstick rather than as an inherent and absolute geometrical proportion.

The book is concentrated and at first reading, with its cross-references to the illustrations, seems a little complicated, but patience is eventually rewarded.

ALICE HARTER

Mensch + Farbe + Raum. Angewandte farbenpsychologie, by Heinrich Frieeling and Xaver Auer. 10½ in. x 8 in. 104 pp. incl. illus. + viii col'd pls. Munich: Callwey. 1954. (DM. 16).

Hitherto, say the publishers, there has been no comprehensive German work examining the psychological effects of colour in factories, offices, hospitals, schools, or even private houses, and presumably this book was planned to answer the need.

Thinking primarily of business and works managements and their engineering staff (but with hopes of interesting others, architects included), the authors have drawn information from many sources and, in particular, from their experience as directors of the Institute of Colour Psychology in Marquartstein in Upper Bavaria and its branch establishment in Munich.

Although it is well provided with clear diagrams and written in straightforward language, British readers will need a fairly thorough knowledge of German to derive much benefit from this undoubtedly competent book.

It was indeed brave, but perhaps just a little foolhardy also, to attempt so many illustrations in colour in a volume priced at not much more than £1. There is a useful bibliography.

J. C. P.

Designs for Living. 175 Examples of Quality Home Interiors, by Katherine Morrow Ford and Thomas H. Creighton. 10½ in. by 8½. 215 pp. incl. illus. New York: Reinhold Publishing Corporation; London: Chapman and Hall. [1955]. £2 8s.

This volume is a model of what such books should be—carefully selected examples, sensible and appropriate comment and good photographs. The authors in their introduction state that most interiors in the United States do not match up to the examples shown, and that it is still difficult to find furnishings and furniture at reasonable prices from the normal 'retail outlets'; none the less one is impressed by the fact that it would be impossible to compile such a volume from English sources.

This book continues the previous volumes *Quality Budget Houses* and *The American House Today* by dealing with interior arrangements—design and furnishing. All the examples are interesting and show the tremendous strides taken in house design in the United States during the last ten years.

They are all the work of architects and range from the single-room holiday house to some very considerable establishments; they all show, however, a sensibility in the use of the materials, textures and volumes

that now express a well-established tradition. It may be suggested that unplastered brick, random rubble fireplaces, match-boarded walls and exposed rafters and ceiling joists have become contemporary clichés—this may well be true, but in the illustration to this book there are few examples where the elements used appear intrusive or forced. The architects do not appear to have decided to 'go modern' but have developed a coherent architectural understanding. A book worth study.

ROBERT TOWNSEND [4]

Town Planning in Uganda: a brief description of the efforts . . . to control development of urban areas . . . by Henry Kendall. 12 in. by 9½ in. incl. illus. 91 pp. + pls., some folding and end papers. London: Crown Agents; Entebbe: Govt. Printers. 1955. £1.

Town Planning in Uganda follows the author's *Jerusalem City Plan and Arab Village Development* (written in collaboration with the Israeli architect-planner K. H. Baruth). This latest H.M.S.O. publication is in the town-planning picture-book tradition, dealing exclusively with Government control of physical development and the preservation of amenities. Kendall has, of necessity, 'gathered a garland of other men's flowers' and if 'the thread that binds them' is a little tenuous and repetitive, it is because the book is about town planning rather than what town planning is about.

Professor Simpson, A. E. Mirams, Dr. E. B. Worthington and Sir Douglas Harris are mentioned among others, but the significant contribution of the German architect-planner, Dr. Ernest May, who also recently advised the Protectorate Government, is overlooked.

The plan accompanying the Kampala Outline Scheme 1951 comprises Mirams' 1930 scheme and May's selected areas at Kololo and Naguru. A model of May's imaginative scheme may be seen in the Uganda Museum, of which he was also the architect. The controls laid down by Mr. Kendall in his statutory scheme are, to quote his own words, 'negative and restrictive in character, being based more on the 1932 than the 1947 United Kingdom Acts.'

The author's abhorrence of corrugated iron and concern at the absence of historical background to building in Uganda have led him to write of the civic centre that: ' . . . control is restricted to such general matters as height of parapets aiming at a uniform skyline along the main roads, the prohibition of corrugated iron, stress being laid on permanent materials such as reinforced concrete or tiles for roof coverings, the fixing of the height of window cills on all floors, the elimination of canopies since most of the buildings face north where protection from the sun by canopy is unnecessary. Balconies, if introduced at all, must be recessed. Architects are left with complete liberty in the detailed layout and design of buildings and the external walls can be of brick, concrete blocks or reinforced concrete.'

On the more general control of architectural design the author writes: ' . . . it was decided to give the Local Authority powers to exercise control over the design of any building in such matters as appearance, choice of materials and manner of construction. In so doing the Board relied on the good taste of qualified architects who are becoming more numerous' and again on fly screens 'provision for screening of windows is essential and from an architectural point of view is a great drawback'.

The arrival of assistance in 1952 enabled the Jinja scheme (on which May had done some preparatory work) to be dealt with in a rather different manner, and the scheme for Jinja and the other towns of the Eastern Province have an analytical and regional approach which makes them appear different in character from those in the remainder of the book.

Some of the photographs are unique but badly taken, and it would have been an advantage to have shown the names of the architects beneath their work, rather than in a list of acknowledgments elsewhere.

The illustrations of the more recent buildings indicate an international character unrelated to the local idiom of photographs of earlier buildings. Indeed, the Kampala clock tower and other illustrations need a second glance if one is to be sure that the photographs were taken in Uganda.

R. J. A. GAZZARD [4]

Tomorrow's Chicago, by Arthur Hillman and Robert J. Casey. 9½ in. x 182 pp. incl. pls. and other illus. Chicago: U.P.; Lond.: Cambridge U.P. 1953. £1 6s.

Two prominent Chicago citizens, a sociologist and a journalist, analyse the many planning problems of the second city of the United States and suggest ways by which they can be solved.

The Practising Architect, by Alec. S. Eggleston. 8½ in. 258 pp. Melbourne, Australia: U.P.; Lond.: Cambridge U.P. 1955. £1 17s. 6d.

This book was written for students but it will also be a useful guide to architects practising in Australia. It covers every aspect of practice and the author not only had a busy architectural life but he lectured to students in the University of Melbourne.

It is interesting to compare practice in Australia with that in England, and generally speaking rules regulating architectural practice are very much alike. The respective Codes of Professional Conduct are similar and there is some similarity in the Scales of Charges. One method of charging fees in Australia is on the cost plus fee system, where the cost of all overhead expenses is charged to the client together with a fixed fee for the architect's personal service. Another method is that under which the architect values his own time on an hourly basis together with the time of his assistants, plus overhead charges. The author states that both systems have been tried and found to work successfully.

Bills of quantities are used in Australia and it appears that a standard method of measurement is also used in most States, but there is a demand by builders for a Federal standard method acceptable throughout Australia. The quantity surveyors' profession is firmly established.

Apart from cost plus and cost plus fee building contracts, there is the Royal Australian Institute of Architects' Contract which contains similar provisions to those in the R.I.B.A. Form of Contract, but quantities do not form part of the contract, the drawings and the specification being the contract documents. The prices in the quantities are used for the valuation of variations. Arbitration is governed by Acts which obtain in each State and are based on the English Act of 1889.

Copyright in Australia is the same as in England, being founded on the English Copyright Act of 1911. Easements of light and support are subject to the general principles applying in England. Party wall matters must be the subject of agreement between owners, but procedure such as applies in London is not provided for.

In an Appendix a list of the various authorities concerned in the control of building is given, and is as formidable as would be a corresponding list compiled in relation to English practice.

It is a sad reflection that the author died before his book was published, but it will remain as a comprehensive treatise on professional practice based on practical experience. A truly worthy memorial.

C. W.

The Modern Church. Edward D. Mills. Architectural Press. £1 10s. 9½ in. 189 pp. text illus.

Foreword and text have been written in a serious, patient manner and with much labouring of self-evident truths. It has been realised, although hardly stressed, that the architect attempting a church should 'with humility offer his talents without thought for himself'; but little has been made of those aspects of the subject which are the essence of building sacramentally. This is a serious omission in a book on church building, especially on modern church building, as the inability of so many of the abler contemporary architects to comprehend church design as a theological affirmation is a matter of the utmost gravity.

The Modern Church is a kind of post-war Building Study. It sets out to be of interest to architects, clergy, building committees and the intelligent layman. The approach is fourfold. A harmless, potted historical introduction, during which we may be surprised to find Ruskin credited with the actual building of churches and the hardness of Butterfield softened to Butterworth, is followed by an examination of church and community in which the prickings of a New Towns conscience is discernible. Short tracts for the architectural layman are included on planning, acoustics, services, insulation, materials and furnishings. A happier example of the longevity of structural timber might have been found.

No building study is complete without appendices. Whilst those in this book contain much that is useful, ecclesiology cannot be so highly condensed. The architect trying to design from first principles for R.C. and C. of E. should seek facts by a harder and more adequately signposted path.

The value of *The Modern Church* is in its illustrations of recent churches at home and abroad. The usual difficulty has been encountered—there is so little first-class work to illustrate. The contributions from the English-speaking countries are either insipid or plainly vulgar. The really interesting buildings, Puerto Ordaz, Pampulha and Ronchamp, are there. It is to be hoped that the widespread illustration of these intensely personal solutions to particular problems will not mean the spawning of a pale progeny over this land. Perhaps it is a commentary on the times that amongst the best works are three mortuary chapels. How well the Pargas Chapel maintains its excellence down the passing years!

The Bibliography would be enriched with the addition of Addleshaw and Etchell's *The Architectural Setting of Anglican Worship* and for R.C. Fr. J. O'Connell's really authoritative and exhaustive *Church Building and Furnishing*. G. G. PACE [F]

East Anglian Buildings. An exhibition at the Castle Museum, Norwich . . . 1956. *Norwich, City: Museums Committee.* 8½ in. 63 pp. + vi pp. of illus. + cover illus. The Museum. 1956. 3s. 6d.

First conceived by the Norfolk and Norwich Association of Architects, this admirable exhibition of nearly 400 items covers all periods from prehistoric to present day. The catalogue gives not only details of all buildings illustrated but notes on the periods and, at the beginning, on building materials. This sort of thing, done all over the country and especially for the hitherto neglected counties, would form an excellent history-in-little, region by region.

How to Make Built-in Furniture, by Mario Dal Fabbro. 9½ in. (viii) + 262 pp. incl. illus. New York: Dodge Corp. 1955. (\$6.95).

Mario Dal Fabbro, who comes of a family of Italian woodworkers, acquired a high reputation in and about Milan in the years before the last war, both as a competent furniture designer and as a remarkably productive and practical craftsman. In 1948 he settled in the United States, where he has deservedly prospered. Author of several books on furniture, published on both sides of the Atlantic, and a frequent contributor to magazines, he has now written a very simple (but thorough) constructional book which should enable any home handyman with time on his hands, space in his house and wood and tools at his elbow to construct 102 'contemporary built-ins'. Architects often turn up their noses at books of this sort—rightly, sometimes. But this one is better than it sounds and quite useful.

J. C. P.

A.B.S. Cards 1956

READERS WILL remember that it is necessary to mention Christmas cards at this unseasonable time of year to allow time for the A.B.S. to receive and fulfil the orders coming from overseas.

There are three cards to choose from this year, and it is hoped that as many architects as possible will favour one or more of them to send to friends and relations, as the Society has heavy commitments and money from the sale of Christmas cards is an important item in its revenue.

Card No. 1, 'The Virgin and Child in Glory' (1673), a painting by Murillo in the Walker Gallery, Liverpool, reproduced in full-colour and gold, is a very rich and glowing card. The reproduction itself is 5½ in. × 4 in., mounted on a tinted card, overall size 6½ in. × 5 in.

Card No. 2, 'Little Owl', is reproduced from a scraperboard original by Peter Shephard [A], who is among the best ornithological artists in the country. It is



Card No. 2, price 9d.

printed in black on a coloured card, either yellow or light cobalt green according to choice. This is an attractive card 5½ in. × 4 in. in size.

Card No. 3 is reproduced from a pen drawing of Durham Cathedral by J. Howard Leech [F], exhibited at the Royal Academy in 1952. It is printed in sepia on ivory card, size 7 in. × 5½ in., and is much finer in detail than would appear from the illustration.

All cards will have the words 'Greetings and Good Wishes' printed on the third page, and if required the names and addresses of purchasers can be added at an additional cost of £1 10s. for the first hundred and £1 for each additional hundred or part of a hundred. The minimum number that can be ordered with this additional lettering is fifty, and orders must be received not later than the



Card No. 1, price 1s. 9d.

end of November. Overseas purchasers should advance this date by the time that the parcel post from Great Britain normally takes to reach them.

Cards may be ordered by post or 'bought direct from the A.B.S. offices at 78 Wimpole Street, W.1, after 1 October, or may be booked. Purchasers who prefer packets to be sent by air mail are required to pay the cost. When ordering, state the reference number of the cards with the total number of each, and in the case of card No. 2 which of the two colours, or totals of each colour, as the case may be. Send cash with the order, and if names and addresses are to be added, please write these in block letters or have them type-written; and, remember, order not later than 30 November. Specimen cards will also be sent to all the Allied Societies where they may be seen and ordered.



Card No. 3, price 1s.

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialised branches of research and will willingly answer inquiries.

*The Director, The Building Research Station, Garston, near Watford, Herts.
Telephone: Garston 2246.*

*The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow.
Telephone: Busby 1171.*

*The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks.
Telephone: Princes Risborough 101.*

*The Director, The British Standards Institution, 2 Park Street, London, W.1.
Telephone: Mayfair 9000.*

*The Director, The Building Centre, 26 Store Street, Tottenham Court Road, London, W.C.1.
Telephone: Museum 5400 (10 lines).*

*The Director, The Scottish Building Centre, 425-7 Sauchiehall Street, Glasgow, C.2.
Telephone: Douglas 0372.*

Forest Products Research 1955. The Report for 1955 of the Forest Products Research Board has been published. The following summarised information is of interest to architects.

Laminated Versus Solid Timber Beams. F.P.R.L. are often asked, 'Are laminated beams stronger than solid ones?' The results of tests show that (a) laminating itself imparts no fundamental increase in strength; (b) laminated beams are no stronger than solid ones when both are made from material free from defects and are at the same moisture content throughout; (c) when material containing defects such as knots and irregular grain is used a laminated beam in which care is taken to arrange the laminations will have greater strength than a corresponding solid one; (d) vertical laminating permits a higher design stress to be used than for solid members and this in practice means greater strength; (e) laminated curved members are both stronger and stiffer than steam-bent solid ones.

Sterilisation of Insect-Infested Timber by High Frequency Treatments. Tests have been carried out aiming at the destruction of wood-boring insects by high frequency currents. Larval mortality of 100 per cent was obtained in most instances when the temperature of the wood rose to above 60° C, larval temperatures exceeding this figure because of their higher dielectric constant. The exposure period required for such temperature to be reached within the wood varied from 15 seconds for 1½ in. thickness to 60 seconds for 2 in. thick material, using an apparatus with a high frequency output of 250 watts operating at 75 Mc/s.

Tension Wood. The successful use of timber for exacting work depends not only on the selection of suitable species but also on the elimination of defective material from the higher grades. A natural defect that may be found in many kinds of hardwood is tension wood, an abnormal type of wood occurring typically on the upper tension side of trees that are growing out of the vertical, as is often the case on steep hillsides or in consequence of exposure to the prevailing wind, or from various other causes.

Apparently tension wood is not generally recognised as such by timber users, but sometimes it is of considerable practical importance as it is apt to cause distortion, splitting and collapse in seasoning and difficulties in machining and finishing. It seems that tension wood has recently become more common in commercial timber, possibly because of the need to utilise more second and third quality trees and top logs, which in former times would have been left in the forest.

The report is published by H.M.S.O., price 4s. 6d. net.

Ventrot Sandwich Membrane. Building Research Station Digest No. 1 dealt with the design of timber floors to prevent dry rot and pointed out that the ground is an inexhaustible reservoir from which moisture can rise, and that even if the rise of water in liquid form is arrested there is still the danger of water vapour. In the case of timber floors laid direct on the site concrete, a barrier to water in both its forms must be provided. This is common knowledge; the question remains how best to ensure impermeability, and Messrs. British Bitumen Emulsions Ltd. claim that their product Ventrot provides an answer.

Ventrot is a blend of residual bitumens to be applied ½ in. thick to a solid sub-floor. It is recommended that the base concrete should not be less than 3 in. thick and that it should have a close-textured even finish. When this base has become reasonably dry on the surface a priming coat of bitumen emulsion should be brushed over the surface at a coverage of one gallon per twenty square yards. When this layer is quite dry Ventrot, heated to a fluid consistency, is poured and squeegeed over the surface. An even screed at least 2 in. thick should then be laid over the Ventrot, to a mix of 1:3 or 1:4.

It is pointed out that to make sure of complete isolation and protection it may be necessary to carry up the Ventrot vertically to make a water-tight joint with the damp-proof course in the walling.

The addresses of Messrs. British Bitumen Emulsions Ltd. are: Dundee Road, Trading Estate, Slough, Bucks; Deeside, Saltney, near Chester; and 20 Maukinfauld Road, Glasgow, E.2.

The Steamloc Packaged Boiler. In the course of the symposium on the design of office buildings, summarised in the May issue of the JOURNAL, reference was made to 'packaged' boilers; Mr. J. R. Kell said that in oil firing the new so-called 'packaged' boilers were of interest, wherein the burner controls and auxiliaries were designed specially to suit the boiler. The office building of the future might be envisaged as containing an oil-fired packaged boiler.

One such boiler is called the Steamloc; it is supplied complete with all necessary ancillary equipment on a prefabricated base, including fully automatic oil-firing equipment with modulating control; electrically driven boiler feed pump and standby steam operated feed water injector; two magnetic water level controls and pump controller incorporating low water cut-out and alarm; feed tank with automatic water level control; operating and control cabinet housing electronic programming control equipment and switchgear; steam, water and oil pipe-work with valves, filters, etc., and all necessary electric wiring and switchgear suitable for standard AC 3-phase 50 cycles supply. The thermal insulation of the shell is protected with coloured sheet steel. The whole unit is permanently mounted on a main base structure for easy transportation and quick installation ready for immediate operation.

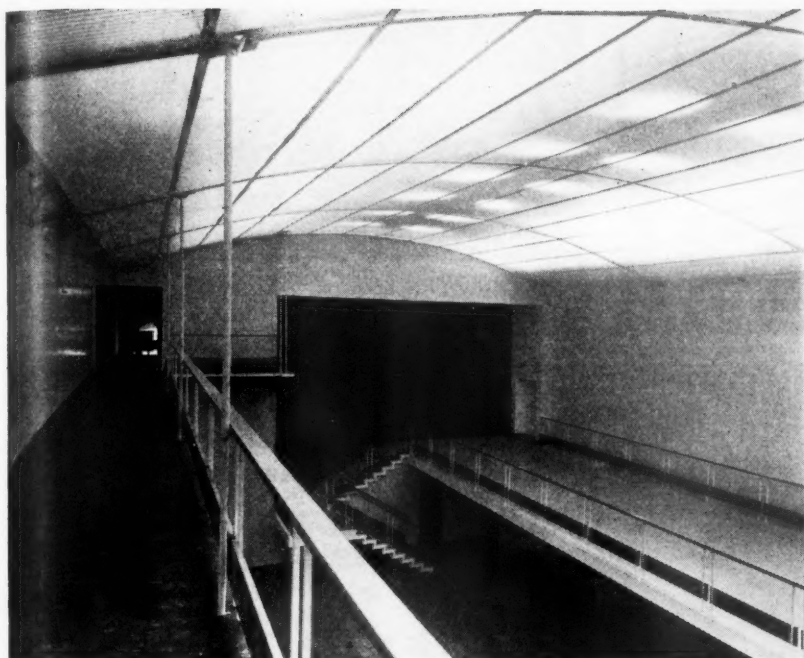
It is stated that under commercial operating conditions the efficiency of the boiler is normally over 80 per cent, and in this efficiency the long travel of the gases through the boiler is an important factor. Other points about the boiler are: that being self-contained it needs less space than is needed for a conventional plant and that it can be installed in a factory without a separate boiler-house; special foundations are not required and the unit can be placed on an ordinary concrete floor; and as forced draught is used a simple flue of sufficient height to disperse the gases can take the place of the normal chimney stack.

There are two types of Steamloc boilers; one working up to 145 p.s.i. and the other up to 250 p.s.i.; both being suitable for low and high pressure hot-water systems. They are made by Messrs. Spencer Boncourt-Clarkson, Ltd., of 14/15 Fetter Lane, London, E.C.4, who are part of the Babcock and Wilcox organisation.

Advisory Leaflets for Builders. The Ministry of Works have issued two new advisory leaflets, prepared by the Technical Information Service of the Ministry. No. 37 deals with *Emulsion Paints*, of which the three main types are alkyd, polyvinyl acetate and styrene based emulsion paints. Information is given on where to use such paints, suitable surfaces and their preparation, application and redecoration. A table gives the properties of the various types.

Lightweight Concrete is the title of Leaflet No. 38; it deals with shrinkage and expansion, density and strength, stock sizes of blocks, and types of the material.

Both leaflets may be obtained from H.M.S.O., price 4d. each, or at reduced rates for quantities.



The remodelled Museum of Health of the Royal Society of Health. Architect: Sir Hugh Casson [F]

A New Flush Door. Messrs. Thames Plywood Manufacturers Ltd., of Harts Lane, Barking, Essex, announce the introduction of a flush door which originated in Sweden and is said to be very successful on the Continent. The special interest in the door lies in the composition of its core, which is composed of short lengths of straw, uniformly cut and so tightly compressed that each sq. ft. contains many thousands of the tubes, and these are glued at right angles to the faces of the door by a special adhesive.

The doors are built up on a wooden frame into which the straw is packed under pressure; for interior use they are then faced with hardboard for painting, or plywood for painting or varnishing, or they may be faced with decorative veneer. For exterior use the facing may be plywood for painting or varnishing, in which case the adhesive used would conform to the relevant British Standard.

The advantages claimed for the door are as follows; the straw tubes provide innumerable air pockets which form a very good sound suppressor, a sound suppression of 22 decibels being quoted; the closed cell construction gives good heat insulation; the straw filling reduces the tendency of the door to vibrate and the absence of hollow spaces eliminates resonance effects; because of its solid construction the door withstands combustion better than an ordinary flush door; and lastly the nature of the core eliminates that rippling of the faces so often present in the normal skeleton core type of flush doors. Partition panelling of similar construction for corridors and offices is available.

The name given to this door is the Thamesply-Werno door.

Floors. A new journal with this title has begun publication; it will deal with various new methods of construction, protective and decorative treatments, and reviews of new floor finishes as they are introduced. General articles will deal with the requirements of floors for serving a specific purpose.

Reference numbers will be allotted to the items and reply paid postcards supplied on which these reference numbers can be inserted. The new journal is a monthly one, and for a time it will be issued as an inset in BUILDING MATERIALS; and during this initial period subscribers to FLOORS will also receive a copy of BUILDING MATERIALS.

The address of the new publication is Floors, Stratford House, 9 Eden Street, London, N.W.1.

Water-Resistant Plasterboard Sarking. Messrs. Gyproc Products Ltd. have developed a fire- and water-resistant sarking for roof structures as an alternative to timber sarking. The board is $\frac{3}{8}$ in. thick with an aluminium foil on one face, a water-resistant core and a water-resistant paper liner on the other side; the board to be laid with its aluminium foil facing the roof space. With a roof system of tiles on battens, plasterboard sarking, a ceiling of insulating gypsum plasterboard and building paper over the joists, it is claimed that the U-value is 0.19.

Thermalite-Ytong. Messrs. Thermalite Ltd. of Shepherds House Lane, Earley, Reading, Berks., announce that they have associated themselves with International-Ytong, who make Ytong blocks, and the product has been renamed Thermalite-Ytong.

The Valor Oil Conversion Unit. There are certain advantages in oil-fired heating appliances which have caused them to be chosen for large installations, but it is a different matter when—as in the case of a house—there is an existing solid fuel boiler. To meet this case the Valor Company Ltd. have brought out a conversion unit that can be fitted to most existing house boiler systems without trouble or structural alterations.

The unit has three main parts: (a) the burner, either $6\frac{1}{2}$ in. for ratings up to 25,000 B.t.u.'s per hour with a water storage tank of 25–30 gallons, or 9 in. of 50,000 B.t.u.'s and 50–60 gallons water storage; (b) the metering valve, and (c) the oil container and oil basin assembly. The container can be fitted where convenient, on either side of the boiler; there is also a type for connecting to an outside bulk storage tank.

Full details can be obtained from the Valor Company, Ltd., of Bromford, Erdington, Birmingham 24.

Lead Pipe and Sheet. The Lead Sheet and Pipe Council have issued their latest booklet giving concise information on the materials, including standard bores and weights, weights of pipe for various uses, external diameters of lead and lead alloy pipes of standard bores and weights, size and weight of soil and waste pipes, and weights and thicknesses of lead sheet.

The address of the council is Eagle House, Jermyn Street, London, S.W.1.

Codes of Practice Recently Published

C.P. 302: 100. 1956. **Small Domestic Sewage Treatment Works.** The Code gives information on the design, construction and maintenance of plants for the treatment of sewage of a domestic character for small groups of houses and individual establishments such as country houses, schools, institutions, etc., with populations not larger than about 300 persons, in cases where it is not possible or expedient to discharge into a public sewer. General guidance only is given, as the Code is not intended to take the place of skilled engineering advice, especially with the larger plants covered by the Code.

Three types of septic tanks are described, the simple tank, the two-storey tank, and tanks in series. Drawings show typical items of plants for populations of 25, 30, 60 and 200 persons, designed in accordance with the recommendations given in the Code. Price 5s.

British Standards Recently Published

B.S. 1451: 1956. **Coloured Mastic Asphalt Flooring (Limestone Aggregate).** This revised Standard forms part of a series for mastic asphalt for building: it provides for coloured mastic asphalt flooring composed of pigment, fine and coarse aggregate, incorporated with a suitable asphaltic cement. The standard of colour is left for agreement between the purchaser and the contractor. Price 3s.



Above: Vault grid type roof ($\frac{1}{4}$ -scale model). Left: Three laminated arches 30 ft. span, 12 ft. 6 in. high, constructed of Douglas fir and roofed with tongued and grooved western cedar boards. These are subject to weathering tests

The New Research Laboratories of the T.D.A. Tyters Green, Buckinghamshire

IN JANUARY 1955 the Privy Council for Scientific and Industrial Research awarded to the Timber Development Association a three years' grant for research, and this has enabled the T.D.A. to set up laboratories at Tyters Green, near Beaconsfield. It was a condition of the D.S.I.R. grant that at the end of the three years a proposal for the formation of an independent research association should be put forward; meanwhile a programme of research has been approved.

The buildings include a biological laboratory, a mechanical testing laboratory and one for electronics, while in the grounds there are areas devoted to preservation and proving plant and experimental structures.

At a Press view last month work in the biological laboratory included tests on the efficiency of fire-proofing preparations and on the application of surface treatments to various varieties of woods, to study the protection given by them.

In the mechanical testing laboratory there was an 80 ft. bowstring truss set up for testing, and the method of using strain gauges was explained. There were also two quarter-size bowstring trusses; one was to be tested to see how far a model would exemplify the effects of loads applied to the full-scale truss, but in the other the inclined bracing has been omitted, and the test loads will show how this system compares in strength with that of the model in which both vertical and inclined members are present.

A boxbeam 20 ft. long, 16 in. deep and 5 in. wide was shown under test. It was made of Douglas fir plywood with flanges of redwood, and the intention of the test was to obtain information about the effects of the spacing of the diaphragms and stiffeners. The total design load being applied was just over $1\frac{1}{2}$ tons, the effect being measured by means of electrical resistance strain gauges, and an interesting point was that the readings were taken by electrical wires through ducts to the nearby electronics building, where an instrument panel enabled the scientist to observe, by remote control, what was happening to the girder.



Experimental plywood silo

Another exhibit in the mechanical testing laboratory was the bottom 4 ft. of a 16 ft. high grain silo. The section was made up of $\frac{5}{8}$ in. Douglas fir plywood (exterior grade) flat standard sheets, curved by bolting to laminated curved softwood bends. The section was filled with grain and when the deflections of the plywood wall have been plotted the effect of the additional 12 ft. will be simulated by adding weighting bags on top of the existing grain.

In the experimental structures proving ground there was a quarter-size model of a grid vault roof, 80 ft. long and 35 ft. span, built up from standard prefabricated panels, some being half size as 'make-up panels'. In the full-size structure each panel would be 8 ft. by 4 ft., made up from 4 in. by $1\frac{1}{2}$ in. timbers, with diagonals of 4 in. by 2 in. Gusset plates of $\frac{3}{4}$ in. plywood would be glued into slots cut into the timbers, the panels to be bolted together both transversely and longitudinally.

Also in the proving ground were panels of various timbers—idigbo, sapele, red meranti, oak and western red cedar; the clear surface finishes included linseed oil, alkyd resin, urea and phenol formaldehyde resins and epoxy resin. To test the effects of different atmospheres on these finishes similar samples are being exposed on Brighton pier (salt-laden atmosphere) and at the T.D.A. headquarters in London (polluted city atmosphere).

One bay of a Dutch barn has been erected, the design being such that long lengths of timber or large dimensions are not necessary, all the members being of quality and sizes readily available. The bay is 30 ft. wide and 18 ft. to eaves, with a roof of 20° pitch



New design for Dutch barn to be tested for wind resistance.

covered with curved and straight asbestos cement sheeting.

An important aspect of this research establishment is the exploration of techniques for the non-destructive testing of timber, as in a mechanical loading test a fresh specimen is required for each test and no two pieces of timber are alike; with non-destructive testing, of course, the same specimen can be used again and again, which would be particularly valuable in tracing the progress of decay by insect or fungal attack. For testing specimens in which the length is much greater than the breadth, such as ladder rungs, the 'sonic resonance' test by electronic instruments is employed, whereby a vibrator induces sound waves which can be varied until a note is found at which the specimen vibrates most violently, when it is said to 'resonate'. The dimensions, density and elasticity of the timber determine the frequency of the sound at resonance, and as the density may be found by weighing, and the dimensions are known, the elastic properties may be calculated. Changes in elasticity in any one species reflect changes in strength.

In ultrasonic tests the size and shape of the specimen are not important, and as ultrasonic waves are directional and may be focused into a fairly narrow beam, cracks and hidden flaws may be detected, such as brittleheart, knots, shakes, or compression or tension wood. The testing apparatus is self-contained and reasonably portable, so tests on existing structures as well as on standing timber may be possible.

Notes and Notices

NOTICES

The R.I.B.A. Appointments Department. Members and Students of the R.I.B.A. and the Allied Societies are reminded that the services of the Institute's Appointments Department are available to employers requiring assistants and to assistants seeking salaried employment.

Employers are invited to notify the Secretary of vacancies in their offices, giving details of the work to be done, the qualifications required and salaries offered.

Assistants should preferably call at the offices of the Appointments Department, but if this is not practicable they should obtain from the Secretary an application form, which when completed and returned to the Institute will enable the Department either to send the applicants particulars of vacancies suitable to their qualifications and requirements or submit their names for vacant posts.

Members and Students seeking official appointments should note that normally these are fully advertised in the weekly professional press, and that therefore the Appointments Department do not as a rule notify them to those on the register.

The Institute will also be glad to advise on most matters concerning architectural employment, including overseas appointments.

Election Void. Under the provisions of By-law 17 the election as Fellow of the following has been declared void: Mr. Hugh Owen Williams.

Disciplinary Action. The membership of Mr. Augustus Edgar McCarthy [L], of 47 Melford Road, London, S.E.22, has, by decree of the Council made pursuant to the Bye-laws, been suspended for a period of ten years from 3 July 1956 and accordingly he ceases during that period to be a member of the Royal Institute.

COMPETITIONS

Ideal Home Exhibition 1957: Competition for the Design of a House. Registered architects are invited to submit designs for a house to be erected at the 1957 Daily Mail Ideal Home Exhibition to be held at Olympia in March 1957.

Assessors: Mr. Arthur W. Kenyon, C.B.E. [F], Mr. Clifford Culpin [F], Mr. L. E. W. Stokes-Roberts, Organiser of the Daily Mail Ideal Home Exhibition.

Premiums: £500, £250, £100.

Last day for submitting designs: 27 September 1956.

Conditions may be obtained on application to Daily Mail Architectural Competition, Gough House, Gough Square, London, E.C.4. No deposit is required.

New Technical College Buildings, Paisley, Scotland. The Governors of the above College invite architects registered under the Architects (Registration) Acts and resident in Great Britain, Northern Ireland or the Republic of Ireland to submit in competition designs for new Technical College buildings in Paisley, Scotland.

Assessor: Professor R. Gardner-Medwin, M.T.P.I. [F].

Premiums: £1,500, £1,000, £500.

Last day for submitting designs: Noon on 27 March 1957.

Last day for que tions: 3 September 1956. Conditions may be obtained from Messrs. J. and A. Gardner, Clerks to the Governors, 3 County Place, Paisley, Renfrewshire.

Deposit: £2.
An applicant for the conditions must state his registration number or the number of the receipt issued to him by the Architects' Registration Council in respect of the admission fee.

New National Opera House at Bennelong Point, Sydney, Australia: International Competition. The Government of the State of New South Wales invites architects who are members of their respective architectural institutes in any country in the world to submit designs in competition for a proposed National Opera House, to be erected on Bennelong Point, Sydney, Australia.

Assessors: Professor H. I. Ashworth, M.A.(Arch.), F.R.A.I.A. [F], Sydney; Mr. Cobden Parkes, F.R.A.I.A. [F], Sydney; Dr. J. L. Martin, M.A. [F], London; Mr. Eero Saarinen, A.I.A., Michigan, U.S.A.

Premiums: £A5,000, £A2,000, £A1,000.

Last day for despatching designs: 3 December 1956.

Every intending competitor was required to register his name and address in writing with the Secretary of the Opera House Committee not later than 15 March 1956.

International Competition of Ideas Regarding the Surroundings of Cologne Cathedral. The City of Cologne invites planners to submit in competition schemes for the redevelopment of the area surrounding Cologne Cathedral.

Assessors: Herr Kelter, Cologne; Herr Riphahn, Cologne; Professor Hillebrecht, Hanover; Herr Steiner, Zürich; Professor Weyres, Cologne; Professor Baader, Bonn; Herr Pecks, Cologne; Professor Leibbrand, Zürich; Herr Schüssler, Cologne; Dr. Adenauer, Cologne.

Premiums: 20,000 DM, 14,000 DM, 10,000 D.M., 6,000 DM.

The City of Cologne will also purchase 5 entries at 2,000 DM each.

Last day for despatching designs: 12 noon, 31 August 1956.

Competitors may send their entries through the diplomatic representatives of the German Federal Republic. Entries arriving after 14 September will not be considered.

Conditions may be obtained on application to Städtebauamt der Stadt Köln, Stadthaus, Gürzenichstrasse.

Deposit 100 DM.

International Competition, Geneva. The Department of Public Works for the Republic and Canton of Geneva are promoting an International Contest of Ideas for the layout of the Place des Nations and of the Approach to the Secretariat of the Palais des Nations in Geneva. Assessors: M. Jean Dutoit, Prof. Sir Patrick Abercrombie [F], M. Eugène Beaudouin, M. Jacques Carlu, M. Arnold Hoechel, M. Giulio Minoletti, M. Werner Moser. The Assessors will work in consultation with representatives of the European Office of the United Nations, the City of Geneva, the Chief of Police of Geneva, the Secretary General of the Department of Public Works.

Premiums: 40,000 Swiss francs to be awarded to a maximum of 5 entries; 10,000 Swiss francs for the purchase of the premiated entry.

Last day for the despatch of entries: 6 p.m., 15 April 1957.

Conditions may be obtained on application to the Department of Public Works, 6 rue de l'Hôtel de Ville, Geneva.

Deposit: 50 Swiss francs, returnable if an entry is submitted.

The conditions of this competition have been approved by the I.U.A.

International Competitions. The following International Competition is at present being considered by the International Union of Architects, who are negotiating the conditions with the promoters.

Competition for a monument in New Delhi to commemorate the 2,500th anniversary of Buddha's Enlightenment.

Promoted by the Government of India.

In this case the Secretariat of the I.U.A. have examined the published conditions of the Competition and found them to be generally unsatisfactory and not in accordance with the standard regulations for International Competitions approved by UNESCO (R.I.B.A. Calendar page 812) on the advice of the International Union of Architects. Member nations of the I.U.A. have accordingly been warned not to participate, but negotiations are taking place between the I.U.A. and the promoters with a view to bringing the published conditions into conformity with the standard regulations and a further note will be published as soon as the conditions are reported by the I.U.A. to be satisfactory.

COMPETITION RESULT

City and Royal Burgh of Perth: Competition for the Lay-out of Buildings, etc.

1. Mr. Herbert G. West, Dip.Arch.(Abdn.) [Student], in association with Mr. Robert E. G. Miller, D.A.(Glas.) [A].
2. Mr. Frederick Selby [A].
3. Mr. T. Findlay Lyon, D.A.(Glas.), A.M.T.P.I. [A].

Commended: Mr. Kenneth G. Wallace, D.A.(Glas.) [A]; Mr. Robert A. Strang, D.A.(Glas.) [A], in association with Mr. James H. Fisher, D.A.(Glas.) [Student].

BOARD OF ARCHITECTURAL EDUCATION

R.I.B.A. Final Examination June 1956. The Final Examination was held in London, Leeds, Manchester, Newcastle, Edinburgh and Belfast from 6 to 15 June 1956. Of the 390 candidates examined, 183 passed as follows:

Passed Whole Examination	112
Passed Whole Examination Subject to approval of Thesis	5
Passed Part 1 only	66
	183

207 candidates were relegated.

The successful candidates are as follows:—

Whole Examination

Adeyemi: A. A.	Brown: G. D.
Armistead: B. T.	Burgess: G. B.
Baker: G. C.	Burt: R. G.
Bath: J. A.	Butters: (Miss) M. L. M.
Bell: Edward	Catt: D. C.
Bellamy: T. A.	Clouter: W. J.
Bennett: J. H.	Colwill: (Miss) J. S.
Billingham: J. D.	Combs: Harold (Distinction in Thesis)
Blaszczak: W.	
Boyes: P. E.	

Cooper: Kenneth
 Cooper: W. P. R.
 Cutler: B. J.
 Dabrowski: J. H.
 Darrington: P. W. J.
 Davey: J. R.
 Davies: W. D.
 Davis: P. C.
 Dees: A. N. (Distinction in Thesis)
 *DeMott: L. T.
 Dixon: P. G.
 Dodgson: G. T.
 Easton: (Miss) M. R.
 Elves: G. J.
 Farrance: C. W.
 Favell: Geoffrey
 Firth: G. C.
 Fletcher: R. K.
 Ford: Jack
 Freak: G. A.
 Garston: J. W.
 Gelsthorpe: J. C.
 Gough: William
 Graydon: R. T.
 Green: J. D.
 Greer-Perry: J. R.
 Hadley: Keith
 Haigh: Brian
 Haley: Anthony
 Hambrook: A. W. F.
 Hammond: C. E.
 Hampton: A. S.
 Hanson: John
 Hardy: M. C.
 Hewett: C. W.
 Hogg: A. D.
 Holmes: G. I.
 Howard: C. F.
 Hughes: V. O.
 Hull: Alwyn
 Hulls: C. M.
 Humphrey: C. R.
 Hussein: Messoud
 Ingle: I. G. J.
 Jablonski: R. K.
 Johnson: P. L.
 Jones: J. B.
 Jones: Roy
 Jones: S. R.
 Kay: M. J.

* Subject to approval of Thesis.

Part I Only

Ainley: Brian
 Anson: T. H.
 Baker: D. L. J.
 Bedford: H. T.
 Binnington: J. R.
 Blakey: R. B.
 Bradley: J. R.
 Braithwaite: Peter
 Brookes: C. C.
 Bucklow: Roy
 Caneparo: J. P.
 Clark: W. A.
 Connolly: P. R.
 Cowell: P. M.
 Croxford: J. B.
 Davis: J. M.
 Denney: Peter
 Doney: J. W.
 Dunphy: T. A.
 Eaton: H. B.
 Edwards: S. L.
 Erridge: J. D.
 Fisher: Alan
 Gibson: Thomas
 Giddens: K. C.
 Goldsack: C. E. J.
 Gott: John
 Hammond: P. D.
 Hardesty: Geoffrey

Kolka: Boleslaw
 Latham: K. A.
 Lynton: J. A.
 Maciejowski: B. L.
 Mackett: F. J.
 Madan: S. Y.
 Mair: F. J. M.
 Malton: J. V.
 Mannings: M. J.
 March: (Miss) A. B.
 Martin: J. H.
 Melhuish: N. D.
 Metcalfe: P. E. M.
 Michael: A. D.
 Michelmores: R. A.
 *Mitchell: Roy
 Moors: R. E.
 Morrow: N. S.
 Newin: M. H.
 Pathare: R. S.
 Patterson: A. J. (Distinction in Thesis)
 *Pattison: G. E.
 Paulo: (Mrs.) T. K.
 Phillips: P. P.
 Razzan: N. N.
 Roberts: G. H.
 Robertson: I. P. L.
 Rome: A. M.
 Rouse: J. L.
 Ryzowski-Heksel: J.
 Sanderson: R. M. K.
 *Smith: R. D. D.
 Smith: R. M.
 *Sture: J. H.
 Sumner: J. B.
 Sutherland: R. L.
 Sweeney: T. P.
 Tidmarsh: D. S.
 Todd: R. B.
 Waterman: C. J.
 Watson: D. M.
 Weatherly: G. C.
 White: B. K.
 Willder: P. S.
 Williams: G. E.
 Williams: N. D.
 Wilson: Roy
 Wotton: D. A.
 Wright: Eric

Harvey: J. W.
 Heaton: G. E.
 Hermesen: A. J.
 Hickman: A. S. F.
 Honer: J. D.
 Kokot-Rudowski:
 Leszek
 Large: W. E.
 Maciejewski:
 Henryk
 Malcolin: T. J.
 Marsh: Geoffrey
 Mountain: Brian
 Park: J. B.
 Patterson: V. I.
 Perkins: Arthur
 Phippen: Peter
 Sampson: W. B.
 Sanders: Ian
 Savage: W. J.
 Scott: P. S.
 Sefton: A. H.
 Shaw: R. W.
 Smith: L. L.
 Smith: P. B.
 Speed: John
 Stephens: E. J.
 Stevens: R. A.
 Taylor: Antony

Taylor: Leonard]
 Timpson: J. L.
 Wade: D. V.
 Ward: M. H.
 Watson: B. D.

Watts: K. G.
 Webster: D. G.
 Weddle: Brian
 Wybraniec: W. A.
 Yabsley: J. F.

R.I.B.A. Special Final Examination June 1956.
 The Special Final Examination was held in London, Leeds, Manchester, Newcastle, Edinburgh and Belfast from 6 to 15 June 1956. Of the 302 candidates examined, 86 passed as follows:—

Passed Whole Examination 69
 Passed Part I only 17

216 candidates were relegated.

The successful candidates are as follows:—

Aldridge: George
 Anstis: J. E.
 Arch: D. A.
 Askew: Harold
 Barnett: S.
 Bennett: D. L.
 Bennett: D. R.
 Blair: M. B.
 Bonner: G. W. V.
 Budd: S. G.
 Burchill: J. G.
 Burns: C. W.
 Cairns: J. G. H. D.
 Carroll: G. F.
 Carter: B. B.
 Carter: C. H.
 Clark: R. F.
 Clifford: J. U.
 Comber: P. G.
 Connolly: Edward
 Craft: R. W.
 Davies: C. F.
 Davis: O. O.
 Eade: K. R. J.
 England: Maurice
 Espie: T. A.
 Flood: S. A.
 Fowler: R. A.
 Franklow: E. G.
 Harrison: T. S.
 Headley: W. M.
 Henshaw: A. J.
 Hine: D. S.
 Holliss: (Miss) E. D.
 M.
 Hollos: Brian

Part I only

Bain: Andrew
 Bond: A. E. A.
 Bunting: A. C.
 Burgess: A. K.
 Calinescu: B. A.
 Carter: D. J.
 Cox: E. W.
 Evelyn: K. M.
 Greenwood: E. H.

Hoyer: S. W.
 Hughes: Kenneth
 Hull: P. R.
 Jones: M. W.
 Kingdon: J. H.
 Krasucki: P. P.
 Leach: Ronald
 MacGregor: D. R.
 Mahdi: A. R.
 Marlowe: (Miss) O. C.
 Melville: James
 Metcalf: W. A.
 Owen: D. W.
 Palmer: H. R.
 Pearson: J. E. T.
 Pegram: N. J. W.
 Pereira: A. P.
 Petit-Jean: G. M.
 Pettigell: G. A.
 Pettit: D. A.
 Polubiec: Henryk
 Randall: R. H. L.
 Reid: H. M.
 Savvides: N. G.
 Slaski: Z. P.
 Smithers: F. G.
 Strachan: Alexander
 Sutcliffe: K. N.
 Turner: D. I. R.
 Walsh: L. A.
 Wastell: H. H.
 Wesolowski: M. J.
 Williamson: F. D.
 Willman: J. A.

Leaning: H. V.
 Lee: K. P.
 Packer: R. J.
 Pestell: L. D.
 Smith: J. D. V.
 Smith: K. G.
 Walker: Leslie
 Whincup: M. F.

Maintenance Scholarship of £75 per annum to R. E. Osler of London.

The Maintenance Scholarships previously awarded to the following candidates have been renewed: D. S. Bremner (Aberdeen School of Architecture, Robert Gordon's Technical College—R.I.B.A. Houston Maintenance Scholarship of £125 per annum), J. D. Connell (Department of Architecture, Northern Polytechnic—R.I.B.A. Houston Maintenance Scholarship of £125 per annum), D. C. Sharp (Architectural Association, School of Architecture—The Ralph Knott Memorial Maintenance Scholarship of £45 per annum), D. M. Smith (Department of Architecture, Northern Polytechnic—R.I.B.A. Houston Maintenance Scholarship of £125 per annum).

ALLIED SOCIETIES

Changes of Officers and Addresses

Berkshire Society of Architects. The Hon. Secretary, A. G. Armstrong [F] has changed his address to 3 Upavon Drive, Reading.

Bristol and Somerset Society of Architects. President, T. W. Snailum [F]. The Hon. Secretary, T. H. B. Burrough, T.D. [F], has changed his address to 17 Orchard Street, Bristol 1. (Bristol 2/3078).

Coventry Society of Architects. Chairman, W. G. Sealey [A].

Northern Architectural Association. President, Donald McIntyre [A]. *Tees-side Branch:* Chairman, E. A. Tornbohm [A].

Sheffield, South Yorkshire and District Society of Architects and Surveyors. President, H. B. S. Gibbs [F]. Hon. Secretary, G. R. Adams, D.F.C. [A], 16 Thornsett Road, Nether Edge, Sheffield.

South Eastern Society of Architects. *Croydon District Chapter:* Chairman, H. Kent Atkins [L], 27 Longcroft Avenue, Banstead, Surrey. Hon. Secretary, Ronald White [A], 76 Beulah Hill, S.E.19. *Guildford District Chapter.* Chairman, J. E. A. Brownrigg [A]. *Maidstone Chapter.* Acting Hon. Secretary, G. E. Soulsby [A], 'Claremont', 30 Northdown Close, Maidstone, Kent.

South Wales Institute of Architects. *Western (Swansea) Branch:* Hon. Secretary, J. I. Levi [L], 14 St. Albans Road, Brynmill, Swansea.

Inverness Architectural Association. President, H. N. Paterson [L].

Royal Architectural Institute of Canada. President, D. E. Kertland (Toronto). Hon. Secretary, Maurice Payette (Montreal).

Federation of Malaya Society of Architects. President, E. G. Gardner [A].

GENERAL NOTES

R.I.B.A. Golfing Society. On 12 June the R.I.B.A. Golfing Society played the L.M.B.A. Golfing Society at West Hill Golf Club. The builders won by 12 matches to 8.

The Summer Meeting of the R.I.B.A. Society took place at the Royal Cinque Ports Golf Club, Deal, and Princes' Golf Club, Sandwich, on 23 and 24 June. On Saturday morning 23 June the competition for the Allensby Bowl, played on the Royal Cinque Ports course, was won by Walter Fisk with 34½ points, the runner-up being Sir Giles Gilbert Scott with 32½ points. In the afternoon a four-ball bogey competition was played over the same course, the winners being E. H. Firmin and R. Duncan Scott, 2 up, and the runners-up S. H. Statham and H. Cullerne-Pratt, 1 up.

On Sunday morning 24 June the two major events of the Society's annual programme took place at Princes' Golf Club, Sandwich. These were the Captain's prize, this year presented by Felix Wilson, and the President's prize, presented by Sir Giles Gilbert Scott. After a great struggle over the long and testing course the results had to be decided on the last six holes of the last nine holes, the results being as follows: *The Captain's Prize*: Harold Cullerne-Pratt, 86 less 9 = 77. Runner-up, Sir Giles Gilbert Scott, 91 less 14 = 77. *The President's prize*: E. H. Firmin, 34½ points. Runner-up, H. J. Stribling, 33½ points.

The annual match with the R.I.C.S. Golfing Society took place at New Zealand Golf Club on Wednesday 11 July. This match, which has a reputation of always resulting in a fierce struggle between the two sides, was again one of the most closely contested matches which either side has played this season. In the morning nine of the ten matches went to the 18th hole and by lunch-time the R.I.C.S. led by six matches to four. The architects had hopes of retrieving the situation in the afternoon but the foursomes resulted in a win of three matches to two to the surveyors, making the surveyors the winners for the day by nine matches to six.

R.I.B.A. Cricket Club. R.I.B.A. v. L.M.B.A. 18 July. The match, which was played at Holloway's Ground, Earlsfield, S.W.18, had unfortunately to be abandoned because of rain. The results were as follows:

R.I.B.A.	
A. Marlow, b Wright	30
J. K. Hawkes, c Walker, b Garrett	0
D. Robinson, c Walker, b Garrett	6
G. Fyson, b Walker	65
A. Morris, st Tobitt, b Garrett	50
R. Hellard, b Walker	0
L. G. W. Bishop, c Walker, b Vidler	0
C. A. R. Norton, b Vidler	1
R. Case, lbw Garrett	26
J. G. Batty, not out	20
R. Holmes, not out	8
Extras	3
Total (for 9 wks. Dec.)	209

Garrett 4 for 61; Vidler 2 for 53; Walker 2 for 52; Wright 1 for 40.

L.M.B.A.	
F. Vidler, not out	9
E. Lessiter, b Case	10
R. W. Triggs	
C. H. P. Trollope	
S. G. Wright	
M. E. Brock	
J. N. Walker	
R. L. Evans	
D. F. Wallis	
R. F. Tobitt	
B. J. Garrett	
Extras	1
Total (1 wkt.)	20

Case 1 for 12; Robinson 0 for 7.

The club needs some more bowlers. The Honorary Secretary, Mr. Derek L. Robinson, of 140 Kenilworth Court, Lower Richmond Road, Putney, S.W.15, will be glad to hear from any of the younger members who may be interested.

Notes from the Minutes of the Council

MEETING HELD 3 JULY 1956

Appointments. (a) *National Consultative Council of the Building and Civil Engineering Industries: R.I.B.A. Representatives*—Michael Waterhouse, Past President, and E. D. Jefferiss Mathews [F], were nominated for reappointment by the Minister of Works. (b) *R.I.B.A. Architectural Bronze Medal: The Sheffield, South Yorkshire and District Society of Architects and Surveyors: R.I.B.A. Representative to Serve on the Jury*. Norman H. Fowler [F], President, West Yorkshire Society of Architects. (c) *British School at Rome: R.I.B.A. Representation*—D. H. Beaty-Pownall [F] in place of P. G. Freeman [F]. Note: the second representative, R. E. Enthoven [F], continues in office until June 1958. (d) *Plumbing Trades National Apprenticeship Council*—E. M. Rice [F] in place of W. A. Guttridge [F]. (e) *British Road Federation: R.I.B.A. Representative at Conference on Urban Motorways*—Arthur G. Ling [F]. (f) *R.I.B.A. Representative on B.S.I. Committee: Natural Stone Quarry Products Industry Standards Committee*—F. H. Heaven [A] in place of Howard Sadler [A].

New Members and Retired Members of Council. The President extended a welcome to the new members of Council, and on his proposition a vote of appreciation of the services of those members who had retired since the last meeting was passed unanimously.

Christmas Holiday Lectures for Young People. Mr. G. Grenfell Baines [A] accepted the Council's invitation to give two lectures for young people at the R.I.B.A. during the Christmas Holiday period 1956.

Allied Societies' Rules. Formal approval was given to amendments to rules of the following Allied Societies:—(a) *The Institute of Architects of Malaya*—A complete re-draft of the rules to meet with developments since the war was approved. (b) *The Essex, Cambridge and Hertfordshire Society of Architects*—Revision to a number of rules was approved. These were con-

cerned chiefly with adjustments in the qualifications for various classes of membership and the procedure for election. (c) *The South Eastern Society of Architects*—Amendments were approved providing for a change in the constitution of the Executive Committee of the Society and the procedure for proposing candidates for election to membership. (d) *The Suffolk Association of Architects*—Amendments were approved by which the date of the Annual General Meeting is changed from June to March and the financial year to end in December instead of March.

Students. 149 Probationers were elected as Students.

Applications for Election. Applications for election were approved as follows: *Election 9 October 1956*—as Fellows 13; as Associates 5.

Applications for Reinstatement. The following applications were approved: as Fellow, Frank Dowdeswell; as Associate, Joseph Rushbrooke Keyte [Retd. A].

Resignation. The following resignation was accepted with regret: Miss Sheila Margaret Pitman [A].

Applications for Transfer to Retired Members' Class under Bye-law 15. The following applications were approved: as Retired Fellows: John Wilfrid Green, Guy Donne Gordon-Hake, Thomas Millwood Wilson; as Retired Associates: Harold Hirst, Paul William Mulready; as Retired Licentiate: Harry Atkinson Keighley, Cyril Slater.

Obituary. The Secretary reported with regret the death of the following members: Norman Toller Myers [F], John Mortimer Sheppard [Retd. F], John Frank Schofield [A], Charles Paget Wade [A], Gwilym Jenkins Davies [L], Frederick Arthur Johnson [L].

By resolution of the Council the sympathy and condolences of the Royal Institute have been conveyed to their relatives.

Obituaries

Charles Shirt Righton, F.R.I.C.S., M.T.P.I. [Retd. L.] died on 11 February, aged 81.

Mr. Righton was a specialist in town planning. He was a former member of the Council of the Town Planning Institute—having been elected an Associate Member as long ago as 1915—and Chairman of the Northern England Division. He worked on planning schemes for a number of local authorities in the Manchester district. His architectural work was mainly domestic and agricultural.

Harry Garnham Watkins [Retd. F], Past President of the Nottingham and Derby Architectural Society, died on 9 April, aged 85.

Mr. Watkins served his articles with his father, Mr. W. Watkins [F] of Lincoln, became an assistant with Mr. A. N. Bromley of Nottingham and entered into partnership with him in 1912. In 1928 he retired, owing to ill health.

The major works executed by the firm of Bromley and Watkins were: a number of telephone exchanges all over the country for the National Telephone Company before the Government took over the telephone service; many premises for the Boots Pure Drug Co.

Ltd.; the greater part of the hosiery factory at Nottingham for Messrs. J. B. Lewis and Sons, now known as Meridian Ltd.; and various bank premises in Nottingham and elsewhere for Lloyds and the National Provincial Banks.

Mr. Watkins was Honorary Secretary of the Nottingham Architectural Society 1899–1903 and President of the Nottingham and Derby Architectural Society 1919–20. He served on the Science Standing Committee of the R.I.B.A.

John Stuart [Retd. F], former County Architect for Essex, died on 31 March, aged 80.

The chief buildings for which Mr. Stuart was responsible were the County Hall, Chelmsford (with Mr. E. Vincent Harris [F]), the technical colleges at Walthamstow and Barking, the Essex Institute of Agriculture at Writtle, the County High School for Boys at Buckhurst Hill, secondary schools at Leyton and Clacton, elementary schools at Dagenham and Grays, the Essex County Hospital, Broomfield, the Royal Eastern Counties Institution at Colchester and the Institution at Suttons, Hornchurch.

Mr. Stuart was County Architect from 1920 to 1945. Previous to 1920 he had been for some years architect to the Education Committee, West Riding, Yorks.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. Philip A. Dixon [A] has been appointed architect to the Nuclear Power Division, Messrs. Simon-Carves Ltd., Avery House, Avery Row, London, W.1, and will be pleased to receive trade catalogues.

Mr. Leonard Gwilt [A] has been appointed Senior Design Engineer in Charge of the Structures and Architectural Section, Engineering Department, Braden Copper Co., Chile. His address will be: Braden Copper Co., Casilla 49-D, Santiago, Chile, S. America.

Lieut.-Colonel R. A. Jensen, A.M.T.P.I. [F], has been appointed to the new Chair of Architecture at Adelaide University and will be leaving this country at about the end of October.

Mr. G. G. King [A] has relinquished his appointment with the City Architect's Department, Bristol, and is taking up an appointment as Assistant Architect, Development Staff, Fiji. Trade catalogues, etc., should be sent c/o the Colonial Secretary, Suva, Fiji. Mr. King sailed on 3 August.

Mr. Hugh McMaster [A], who for the past three years has been Deputy Regional Architect with the Newcastle Regional Hospital Board, has been appointed Regional Architect to the Manchester Regional Hospital Board. He will take up his new appointment in October.

Mr. W. J. Tudor Williams [A] has resigned his position with the Paddington Borough Council to take up the appointment of Chief Assistant Architect to the Borough Engineer, Lambeth Borough Council, London, S.W.2.

PRACTICES AND PARTNERSHIPS

Mr. Richard Betham [A], **Mr. J. Milnes-Smith** [A] and **Mr. R. A. B. Hitch** [A] have formed a partnership to be known as **Betham, Milnes-Smith and Hitch**. They will continue to practise from 3 Raymond Buildings, Gray's Inn, W.C.1.

Mr. Peter A. Clarke [A] has become an associate in the firm of **Norman and Dawbarn** [FF].

Mr. R. Willis Deans, G.M. [A], and **Mr. John Falconer** [A], practising as **Deans & Partners**, Kampala, Jinja and Mbale, have taken into partnership **Mr. A. R. P. Advice** [A] and **Mr. R. P. E. Holden** [A]. The style and addresses of the firm remain unchanged.

Mr. Peter F. R. Glossop [A] has taken into partnership **Mr. Michael Brayshaw** [A] and the practice will be carried on under the style of **Glossop & Brayshaw** at 44 Gluman Gate, Chesterfield, where they will be pleased to receive trade catalogues, etc.

Mr. Philip Hicks [A] has begun practice as architect and landscape designer at 6 Beechwood Avenue, Kew Gardens, Surrey, where he will be pleased to receive trade catalogues.

Mr. Brian D. Kett [A] and **Mr. Eric E. Neve** [A] have entered into partnership and will practise at 52 Oakfield Road, High Road, Ilford, Essex (ILFord 3854), under the title of **Kett & Neve**.

Mr. K. R. B. McKnight [A] has begun practice at 21 Warwick Row, Coventry, Warwickshire (Coventry 2949), where he will be pleased to receive trade catalogues, etc.

Mr. Robert H. Matthew, C.B.E. [F], Professor of Architecture of the University of Edinburgh, has taken into partnership **Mr. S. A. W. Johnson-Marshall**, C.B.E. [A], who has relinquished the post of Chief Architect to the Ministry of Education. The name of the firm will be **Robert Matthew and Johnson-Marshall**. A London office will in due course be opened at 24 Park Square East, London, N.W.1. The Edinburgh office will continue at 31 Regent Terrace, Edinburgh 7.

Mr. D. J. Robinson [A] has acquired the former practice of John W. Wilson and Alan L. Snow at 48 High Street, Sutton Coldfield, Warwickshire. He will continue it at the same address under the name of **D. J. Robinson**.

Mr. L. Robinson [L] has resigned his appointment as Architect and Surveyor to Messrs. Thomas Tilling Ltd. and subsidiary companies and has begun private practice at 120 Moorgate, E.C.2 (MONarch 0389-90). He will be pleased to receive trade catalogues.

Mr. J. P. Rochford, A.M.T.P.I. [A] has begun private practice at 50 Bank Street, Sheffield 1, and will be pleased to receive trade catalogues, etc.

Mr. Maurice Sanders [F] has taken into partnership **Mr. Henry Montague** [A]. The practice will continue at 24 Harley Street, W.1, under the style of **Sanders & Montague**.

Messrs. Basil Spence and Partners [F/AA] will be opening a new office at 1 Canonbury Place, London, N.1 (CANonbury 7175) on 3 September. They will be pleased to receive trade catalogues. This is in addition to the present offices at 48 Queen Anne Street, London, W.1, and 40 Moray Place, Edinburgh 3.

Mr. Bernard W. Webb [A] has resigned from the Public Works Department, Nairobi, and is now in private practice at P.O. Box 20004, Cargen House, Nairobi, Kenya, East Africa. (Telephone: office 20620, home 66223).

CHANGES OF ADDRESS AND TELEPHONE NUMBER

The present address of **Mr. A. C. C. Hudson** [A] is 35 Compton Way, Moor Park, Farnham, Surrey.

Mr. Walter E. Jefferiss [L] has now changed his office address to 3 Eagle Street, Holborn, W.C.1 (CHAncery 5082).

The telephone number of **Messrs. George Lowe & Partner** [F/A] has been changed to CROydon 3608-9.

Mr. Kenneth Murta [A] has changed his private address to 26 Park Parade, Roker, Sunderland.

Mr. Duncan Thomson [L] has changed his address to Midland Bank Chambers, 20A Hill Road, Wimbledon, S.W.19 (WIMbledon 3437).

Mr. Bernard P. Ward [A] has changed his address to 118 Auckland Road, London, S.E.19.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Architects with wide provincial interests, wishing to develop their London office, are anxious to contact a young architect, resident and with some connections in London, with a view to partnership. Box 52, c/o Secretary R.I.B.A.

Vacancy for Chief Architectural Assistant with view to partnership. The work is mainly industrial. West Riding of Yorkshire. Box 53, c/o Secretary R.I.B.A.

Partnership required in small practice by Associate (37), sound experience at home and

abroad, competent job control, capacity for work. Capital available. Box 54, c/o Secretary R.I.B.A.

Associate (31), 14 years' varied experience, with own small practice in Bristol, seeks partnership with a reputable firm or would purchase practice of retiring member in south or south-west. Some connections and work in hand could be brought in. Capital available. First class references can be given and the strictest confidence will be observed. Box 55, c/o Secretary R.I.B.A.

Company architect (30), Associate, Honours graduate with wide experience, seeks junior partnership or position leading thereto in or near Sheffield. Box 56, c/o Secretary R.I.B.A.

Firm established ten years in London, W.1, have vacancy for partner with current work or connections or would consider amalgamating with another small practice to share overheads. Good office in pleasant situation. Box 57, c/o Secretary R.I.B.A.

Experienced architect desires partnership with established architect approaching retirement. Some capital available. Box 59, c/o Secretary R.I.B.A.

Associate aged 39 seeks partnership, preferably in south-west. Capital available. Box 60, c/o Secretary R.I.B.A.

Associate (35) with small practice in London wishes to contact older practising member who may wish to retire in the near future, with view to partnership arrangement to mutual advantage. Box 61, c/o Secretary, R.I.B.A.

Associate (41), varied experience, seeks partnership or position leading thereto. Southern Counties. Some capital available. Box 63, c/o Secretary, R.I.B.A.

ACCOMMODATION

Architect has two offices to let (one large, one small) at London Bridge. Rent £200 p.a. Box 58, c/o Secretary R.I.B.A.

The Royal Institute of British Architects, as a body, is not responsible for statements made or opinions expressed in the JOURNAL.



Architects' Indemnity Insurance

The Architect, like other professional men, incurs certain responsibilities in the course of his work. Mistakes occur in even the most carefully conducted practice, and the Architect may find himself liable for substantial damages which he can ill afford to meet.

Professional Indemnity Insurance is designed to give cover against all claims arising from acts of neglect, omission or error arising out of the conduct of the assured's profession, and arrangements have been made by which the maximum cover may be obtained at reasonable cost.

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The Secretary, A.B.S. Insurance Agency Ltd.,
78, Wimpole Street, London, W.1.
Tel: (WELbeck 1526)

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